

11. CMS

The following sections cover the Command Management Subsystem (CMS). CMS is responsible for the generation and management of spacecraft loads.

11.1 Load Generation Tools

Information related to the load generation tools can be found in section xxxxx.

11.2 ATC Load Generation Features

There are a few features of the ATC Load generation process that need further explanation. These are the usage of the ATC Safe Activity and the padding of NOOP commands at the end of the ATC buffer.

11.2.1 ATC Safe Activity

Each ATC load partition that is uplinked to the spacecraft has a safe activity appended to the end of the load. The purpose of the safe activity is to place the spacecraft in a safe mode if the next ATC load partition is never uplinked to the spacecraft. Certain information related to the safe activity must be defined in the FmMmConfiguration.cnfg file located in the configuration file directory. The following is the list of configuration item labels related to the safe activity that must be set in the configuration file.

SAFE_ACTIVITY – The name of the safe activity.

SAFE_ACT_START_DELTA – The time between the last command in the load partition and the time of the first command in the safe activity. The value is a real number that represents seconds.

SAFE_ACT_STOP_DELTA – The time between the last command in the safe activity and the official end time of the safe activity. The value is a real number that represents seconds.

All other information related to the safe activity is retrieved directly from the database. This includes the number of commands in the activity, the commands, and the relative execution times for each command. During the Spacecraft Model's initialization phase, it accesses the database to retrieve the safe activity. If the safe activity is not defined, the spacecraft model will send out an event and shutdown.

11.2.2 NOOP Command Padding

During ATC Load generation, if the Spacecraft Model determines that the end of the ATC Buffer is reached, it must create a new load partition. Between this and the requirement that each partition have a safe activity, there can, on rare occasions, be a need to pad the ATC buffer with

some NOOP commands. Certain information related to the NOOP command used for this padding is found in the FmMmConfiguration.cnfg file located the configuration file directory. The following is the list of configuration item labels related to the NOOP command that must be set in the configuration file.

NOOP_MNEMONIC – The name of the NOOP command.

NOOP_INTERVAL – The time between NOOP commands. The value is a real number that represents seconds.

The command mnemonic is retrieved during the Spacecraft Model initialization phase. If the mnemonic is not found in the configuration file, an event message will be sent and the Spacecraft Model will shutdown.

11.3 Memory Modeling

The Command Management Subsystem maintains two models of the spacecraft. They are the Spacecraft Model and the Image Model. The Spacecraft Model's primary purpose is to maintain the current and predicted contents of the Absolute Time Command (ATC) buffer, the Relative Time Sequence Command (RTS) buffers, and spacecraft tables.

The Spacecraft Model's ATC Buffer maintains a complete listing of the 3000 commands stored in the AM1 ATC buffer. For each command in the buffer, the model maintains the command's mnemonics and sub mnemonics, the execution time, and buffer location. When the model receives notification of the successful uplinking of a ATC load partition, the ATC Buffer model is updated with the contents of that load. The old commands will be overwritten with the commands from the load.

The Spacecraft Model's ATC Buffer plays a crucial role in the generation of ATC loads from a DAS. When a DAS is being processed, the Spacecraft Model maps the ATC commands from the DAS into buffer locations on the spacecraft. If all of the ATC commands can not be uplinked at once because of lack of room in the ATC buffer, the model will segment the DAS into two or more ATC loads. If an ATC load is greater in size than the 4k load limit for AM1, the model will partition the ATC load. As a result of all of this processing, the Spacecraft Model creates a series of predicted ATC Buffers, one buffer for each ATC load partition. Each predicted buffer contains what would be in the spacecraft's ATC buffer if that partition was successfully uplinked. When an ATC load partition is successfully uplinked, the Spacecraft Model uses the appropriate predicted model to update the actual ATC buffer model.

The Spacecraft Model's RTS Buffer model maintains a complete listing of the contents of AM1's 128 RTS buffers. For each RTS buffer on the spacecraft, the model maintains the list of commands currently in that buffer. A predicted buffer model is created for a RTS buffer when the Spacecraft Model encounters an uplink of an RTS load during DAS processing. The predicted buffer will be used to update the actual RTS buffer model when the Spacecraft Model receives notification that the RTS load has been successfully uplinked.

The Spacecraft Model's Table Model maintains the contents of all of the Spacecraft's tables. A Spacecraft table is one that is defined in the PDB. When the Spacecraft Model receives

notification that a table load was successfully uplinked, the table model will be updated with the contents of the table load.

The Image Model is a complete binary map of all of the spacecraft memory except for the microprocessors. The Model includes the binary images of the spacecraft's flight software, ATC buffer, RTS buffers, and tables. During the load generation process, regardless of load type, a binary image for that load is created. When the Image Model receives notification that a load has been successfully uplinked, the image file for that load is used to update the model.

The contents of the Spacecraft Memory Model and the Memory Image Model can be examined through the Report Generator Tool (see section 7.12). Two graphical tools are also provided to examine the contents of the Spacecraft Memory Model. The ATC Buffer Display allows the user to examine the contents of the actual ATC Buffer in the Spacecraft Model. The RTS Buffer Display allows the user to examine the contents of the actual RTS Buffers in the Spacecraft Model.

11.3.1 ATC Buffer Display

The ATC Buffer Display tool provides the user with the contents of the actual ATC Buffer Model from the Spacecraft Model. The actual ATC Buffer Model reflects the actual contents of the ATC buffer at that time. Currently the user can not view any predicted or previous ATC Buffers. The display will only show what is currently on the spacecraft.

To Start the ATC Buffer Display:

1. Click **Tools...** on the Control Window. The Tools dialog box opens.
2. Select **ATC_Buffer_Display** from the Tools dialog box. The **ATC Buffer Start Dialog** box appears. (See figure xxxx). Within the **ATC Buffer Start Dialog**, the user selects the spacecraft id and the operational mode.
3. Select **OK**. The Dialog box disappears and the **ATC Buffer Dialog** and **ATC Buffer Display** screens will appear.

<Screen snap of The **ATC Buffer Start Dialog**>

The **ATC Buffer Dialog** allows the user to filter out what will or will not be seen in the **ATC Buffer Display**. Through the **ATC Buffer Dialog**, the user can select the buffer locations to be displayed; flag commands awaiting execution; flag commands already executed; flag critical commands; flag pseudo-op commands; flag commands related to a specific subsystem or instrument; or flag commands with a specific group inhibit id. The **ATC Buffer Dialog** is also accessible through the **ATC Buffer Display**'s **Filter** button.

<Screen snap of The **ATC Buffer Display**>

The **ATC Buffer Display** shows the requested buffer locations in the ATC buffer. For each location, the display will show the location number; execution time; command mnemonic and sub-mnemonics; and the flag indicators for the command. If a command has a flag indicator turned on, the command meets the requirements for that particular indicator.

<Screen snap of The ATC Buffer Dialog>

11.3.2 RTS Buffer Display

The RTS Buffer Display tool provides the user with a map of the RTS Buffers and the contents of each RTS Buffer. The RTS Display tool will only show what is currently on the spacecraft. The user can not access any of the predicted or previous RTS Buffer Models.

To Start the RTS Buffer Display:

1. Click **Tools...** on the Control Window. The Tools dialog box opens.
2. Select **RTS_Buffer_Display** from the Tools dialog box. The **RTS Buffer Start Dialog** box appears. (See figure xxxx). Within the **RTS Buffer Start Dialog**, the user selects the spacecraft id and the operational mode.
3. Select **OK**. The Dialog box disappears and the **RTS Map Display and RTS Command Display** screens will appear.

<Screen snap of The RTS Buffer Start Dialog>

The **RTS Map Display** shows information related to each of the RTS Buffers. For each RTS buffer, the screen will display the buffer's number, the number of links to the buffer, the inhibit id for the buffer, and a set of flag indicators. The number of links represents the number of other RTS Buffers whose execution are initiated by the commands within that particular buffer. The flag indicators are used to highlight buffers that meet the requirements selected through the **RTS Map Display**'s **Filter** button. To examine the commands within an individual RTS Buffer, the user double clicks on the RTS buffer's number in the **RTS Map Display**. The commands for that buffer will appear in the **RTS Command Display**.

<Screen snap of The RTS Map Display>

The **RTS Map Filter** allows the user to flag RTS Buffers in the **RTS Map Display** based on inhibit id, owner, sub system, or if the buffer contains a critical command. When the user clicks on **OK** or **Apply** button, the appropriate indicator flags are turned on in the **RTS Map Display** beside the RTS Buffers that meet the filters selection criteria.

<Screen snap of The RTS Map Filter>

The **RTS Command Display** shows the individual commands stored in the selected RTS Buffer. For each command, the display will show the location number; relative execution time, command mnemonic and sub-mnemonics.

<Screen snap of The RTS Command Display>

11.4 Image Processing

CMS generates images automatically when a load is created or a dump is received from telemetry. All images in the FOS system are stored as .fdmp files and are not userreadable. Any

generated image can be compared to another image through the use of the Report Generator Tool or the use of an ECL Directive.

An image compare is a word by word compare on an address by address basis. The user also has the ability to indicate the start address, end address, and mask information. All masks are stored in the database and take one of two forms. A “mask” is a start address and number of words pair indicating a segment of memory NOT to be compared. A “mask group” is a set of masks that together make a logical grouping to be applied for one compare type (i.e ATC, RTS, Specific Table, FSW area or MP area) Note, there can be multiple mask groups applied to one compare request and there is no limit on the number of mask groups only the names must be unique. If the mask is outside the range of the image compare addresses it has no effect. Only addresses in common to both images are compared. If either image has a “gap” then the gap is zero filled and the compare continues.

The image overwrite is performed on an address by address basis. If the original image does not contain any data for the address range of the new image is appended to the original image and padded with zero words in the region between the images. If the two images overlap anywhere the value of the word at the overlapping addresses in the new image is copied to the original image.

11.5 CMS Reports

CMS generates reports automatically and on user request. Whenever a load is generated by the CMS Load Catalog, a report on that load is created. These reports are stored in the report directory and can be viewed by an editor or through the Report Generator Tool.

The user can request the generation of reports related to the Load Catalog, the Spacecraft Model, and the Image Model. To generate Load Catalog reports the user must go through the DMS netscape pages, see section 10.4.5. To generate Spacecraft Model reports or Image Model reports, the user must go through the Report Generator Tool.

11.5.1 Dump Report

CMS generates a dump report when a memory dump is received from telemetry. The report can be viewed via a text editor or the report browser tool. The dump report contains the dump file name, data quality, dump data and specific dump information including: dump initiate command, start address, word count, user who initiated the dump, expected words, number of words dumped, and remote terminal id.

11.6 CMS Products/Naming Convention

The .cnt, .upl, and .img files are three files that are created once a load (ie RTS, Table, Binary) is generated via the load builder tools. The .cnt file is a RogueWave binary file that contains information on the load contents. The .upl file is the uplink file for the spacecraft and the .img file is used by the FOT as a ground reference of the uplink file. All of the above mentioned files are not user readable.

Instrument (Microprocessor) Loads adhere to the following file naming convention:

AM1_MPR_<Instrument Name>_aaaaaaaaaaaaaaa.cnt

AM1_MPR_<Instrument Name>_aaaaaaaaaaaaaaa_<Partition Number>_OF_<Total Number of Partitions>.upl

AM1_MPR_<Instrument Name>_aaaaaaaaaaaaaaa_<Partition Number>_OF_<Total Number of Partitions>.img

Where:

<Instrument Name> - MISR, MOP, MOD, AST, CEA

aaaaaaaaaaaaaaa is user-defined text with a maximum length of 30 characters

RTS Loads adhere to the following file naming convention:

AM1_RTS_<RTS#>_<Sub/Instr>_aaaaaaaaaaaaaaa.cnt

AM1_RTS_<RTS#>_<Sub/Instr>_aaaaaaaaaaaaaaa_<Partition Number>_OF_<Total Number of Partitions>.upl

AM1_RTS_<RTS#>_<Sub/Instr>_aaaaaaaaaaaaaaa_<Partition Number>_OF_<Total Number of Partitions>.img

Where:

<RTS#> is the RTS number

<Sub/Instr> is the subsystem/instrument ID

aaaaaaaaaaaaaaa is user-defined text with a maximum length of 30 characters

Table Loads adhere to the following file naming convention:

AM1_TBL_aaaaaaaaaaaa.cnt

AM1_TBL_aaaaaaaaaaaa_< Partition Number>_OF_<Total Number of Partitions>.upl

AM1_TBL_aaaaaaaaaaaa_< Partition Number>_OF_<Total Number of Partitions>.img

Where:

aaaaaaaaaaaaaaa is user-defined text with a maximum length of 30 characters

ATC Loads adhere to the following file naming convention:

AM1_ATC_yyydddxx_V_S.cnt

AM1_ATC_yyyyddxx_V_S_< Partition Number>_OF_<Total Number of Partitions>.upl

AM1_ATC_yyyyddxx_V_S_< Partition Number>_OF_<Total Number of Partitions>.img

Where:

xx is the DAS ID

V is the version

S is the segment number

FSW loads adhere to the following file naming convention:

AM1_FSW_aaaaaaaaaaaaaaaa.cnt

AM1_FSW_aaaaaaaaaaaaaa_< Partition Number>_OF_<Total Number of Partitions>.upl

AM1_FSW_aaaaaaaaaaaaaa_< Partition Number>_OF_<Total Number of Partitions>.img

Where:

aaaaaaaaaaaaaaa is user-defined text with a maximum length of 30 characters

This page intentionally left blank.

12. EOC File Management

File management operations within the EOC are performed either through the terminal emulator or with tools provided by the operating system. FOS-supplied menu entries and script files have been added to extend basic capabilities. Refer to operating system documentation for more detailed information. Online help is also available to guide novice users. The methods used to perform specific file management operations are presented in the following text.

12.1 UNIX Utilities

Access to UNIX utilities is available through ECL (Release B). These utilities are usually used to perform file maintenance functions. Brief descriptions of these common commands are presented in the following paragraphs along with examples of typical usage, and if applicable, the ECL directive that accesses the same function. Refer to the operating system documentation for complete information on these and other UNIX utilities.

This page intentionally left blank.

Appendix A. ECS Command Language (ECL)

A.1 ECL Syntax and Language Elements

The FOS ECL grammar resulted from a comparison of the grammar and features of various heritage command languages, along with input solicited from operations personnel and developers of heritage control centers. The heritage command languages that were compared included:

- a. CSTOL (OASIS).
- b. PSTOL (PORTS).
- c. PACS STOL (PACS).
- d. SCL (COTS product used on the Clementine Program).
- e. TSTOL (TPOCC).

ECL grammar will implement the following features:

- a. Conditional construct (refer to paragraph A.1.3.1).
- b. Loop constructs (refer to paragraph A.1.3.2).
- c. Nesting of constructs.
- d. Arithmetic and logical operators (refer to paragraph A.1.1.4).
- e. Variables and arrays (refer to paragraph A.1.2.2).
- f. Built-in functions (refer to paragraph A.1.2.3).

A.1.1 Lexical Elements

A.1.1.1 Character Set

ECL constructs may be represented with the basic character set:

- a. Alphabetic characters. A-Z, a-z.
- b. Digits. 0 through 9.
- c. Special characters. "& () * + - / ! \ ~ % < > = ^ | _ \$ # : @ .
- d. The space character (i.e., a blank).

ECL is case sensitive. This allows users to implement a flexible naming convention for mnemonics, procedures, and variables.

A.1.1.2 Identifiers

Identifiers within the ECL are used to specify names of procedures and variables. An identifier can contain up to 32 characters, including any combination of letters (upper and lower case), digits, and underscores. All characters in an identifier are significant, including underscores. Identifiers are case sensitive - upper and lower case letters are not equivalent.

Syntax.

identifier = letter{underscore (_) letterOrDigit}

where:

letterOrDigit = letter | digit

letter = upperCaseLetter | lowerCaseLetter

Examples.

TOTAL

NumberOfItems

CumTemp

Procedure1

Cum_Voltage

A.1.1.3 Literals

Both numeric and character literals are supported by ECL. Numeric literals can be expressed in the following formats:

- a. Decimal integer.
- b. Hexadecimal.
- c. Octal.
- d. Binary.
- e. Floating point.
- f. Scientific notation.
- g. Time.
- h. Degrees.

A character literal is formed as a character string enclosing one or more ASCII characters between double quotation marks. No spaces are required between literals.

Syntax:

```
literal = numericLiteral | characterLiteral  
numericLiteral = decimalNumber | realNumber | basedNumber | dateValue | timeValue |  
degreeValue  
exponent = E [+] realNumber | E - realNumber  
decimalNumber = integer [exponent]  
integer = {digit}  
realNumber = digit . digit (ex. 0.0)  
basedNumber = hexNumber | octalNumber | binaryNumber  
hexNumber = 0xhexInteger  
hexInteger = 0-9 | A-F  
octalNumber = 8xoctalInteger  
octalInteger = 0-7  
binaryNumber = 2xbinaryInteger  
binaryInteger = 0 | 1  
timeValue = [[hour:]minute:] second  
hour = 0-23  
minute = 0-59  
second = 0.000-59.999  
dateValue = YYYY/DDD  
dayofYear = 1-366  
degreeValue = decimalNumber [DEG | RAD]  
characterLiteral = "{character}"
```

Examples.

12345	1E6	3.14159	0110-
0.5	1.52E+7	1.651E-9-	
0x32FB	8x712	10:23:45-	
12: 09	1995/232	92 DEG-	
"ABCD"	"x"	"Sample String"-	

A.1.1.4 Arithmetic and Logical Operators

ECL supports traditional arithmetic and logical operators. Table A-1 lists these operators, including their arity and precedence. (Reminder: parenthesis override precedence.)

Table A-1. ECL Arithmetic and Logical Operators

Operator	Function	Arity	Precedence
<code>++</code>	Increment variable	unary	1
<code>--</code>	Decrement variable		
<code>!</code>	Logical NOT	unary	2
<code>~</code>	Bitwise complement		
<code>-</code>	Arithmetic negation		
<code>+</code>	Unary plus		
<code>*</code>	Multiplication	binary	3
<code>/</code>	Division		
<code>%</code>	Modulus		
<code>+</code>	Arithmetic addition	binary	4
<code>-</code>	Arithmetic subtraction		
<code><<</code>	Left shift	binary	5
<code>>></code>	Right shift		
<code><</code>	Less than	binary	6
<code><=</code>	Less than or equal to		
<code>></code>	Greater than		
<code>>=</code>	Greater than or equal to		
<code>==</code>	Equality		
<code>!=</code>	Inequality		
<code>&</code>	Bitwise AND	binary	7
<code>^</code>	Bitwise exclusive OR	binary	8
<code>x</code>	Bitwise inclusive OR	binary	9
<code>&&</code>	Logical AND	binary	10
<code>xx</code>	Logical OR	binary	11
<code>//</code>	Concatenation	binary	12

A.1.1.5 Comments

ECL allows users to enter comments within procedures. Comments are preceded by a pound sign (#) and are terminated by the end of the line. A comment may appear on the same line as an executable directive. Multi-line comments must be preceded by a pound sign on each line.

Syntax:

[character]

Examples:

```
# This is a comment on a separate line
WAIT # This is a comment appended to the end of a directive
```

A.1.1.6 Continuation Lines

The ECS Command Language supports the use of continuation lines. A directive line may be continued by ending the line with a backslash (\) character. Any text following the backslash on the same line will be ignored.

A.1.1.7 Directives

ECL supports the use of directives. A directive is a request or command to perform a specific function. There are two basic categories of directives: spacecraft and instrument commands; and FOS subsystem requests. ECL directives are categorized into command, ground, and local directives (refer to Section 6.1)

A.1.1.7.1 Spacecraft and Instrument Command Directives

Using spacecraft and instrument commands is restricted to users who currently have command authority. When a command is entered, it is validated and prepared for uplink to the spacecraft.

Syntax:

From the CMD input line

CMD cmdMnemonic[{parm=literal | variable}]

or

cmdMnemonic[{parm=literal | variable}] #in activities

where

CMD (or /) = command directive identifier

cmdMnemonic = command mnemonic

parm = submnemonic or subfield (e.g., p1, p2, p3, etc.)

literal = state value, or actual value (refer to paragraph A.1.1.3)

variable = variable reference (refer to paragraph A.1.2.2)

Command mnemonics (cmdMnemonic) will be supplied by spacecraft and instrument developers and are stored in the Project Database (PDB).

Example:

```
/TCS_SET_PBATPWMA HTRGROUP=6#
```

Submnemonics are optional and may not be used on all spacecraft. If the submnemonic is not specified the default value will be assigned.

Users also may specify a command directive by its hexadecimal representation, as follows.

Syntax:

CMD RAW = basedNumber

or

/RAW = basedNumber # Short form

where,

basedNumber = hexadecimal, octal, or binary literal (see Section A.1.1.3)

Example:

/RAW = 0x7BD549A1

Additional directives affecting the spacecraft, such as /LOAD and /DUMP, have a context-specific syntax defined in Table A-3.

A.1.1.7.2 ECL Directives

ECL directives allow users to request various services from any FOS subsystem. Some examples of these requests include:

1. Perform a comparison of a ground image and memory dump.
2. Display a specified telemetry page.
3. Execute a local procedure.

Syntax:

keyword [secondaryKeyword [{[,]secondaryKeyword}]]]

where,

instruction = identifies ECL directive keyword as specified in the table A-3.

secondaryKeyword = a secondary keyword qualifying the instruction.

Examples:

PAGE MICAM2 # Display the telemetry page MICAM2

START ABC() TIME=11:30:45 #Start procedure ABC today at 11:30:45

KILL ABC # terminate procedure ABC

```
IMGCMP TABLE LOAD=AM1_TBL_ESA_OFFSET_01_OF_01.img LOAD=
AM1_TBL_TEST_01_OF_01.img MASK = <MaskFileName> start = 8x120 stop
=8x377PRT=Y #compares two image files using database defined mask
```

In the first example, the instruction is PAGE. In the next two examples, the instruction identifies the directives as procedure directives. The last example requests an image comparison of a two table load image files . A mask (MASK1) will be used to exclude areas from the comparison. In addition, the comparison will start at address 120 (octal) and end at address 377 (octal). The print option (PRT=Y) requests that the comparison report be sent to the default printer.

A.1.1.8 Reserved Words

ECL includes two categories of reserved words: keywords and built-in function names. Keywords are used to define directives or constructs within the command language grammar. Function names identify predefined system functions, such as trigonometric functions, that may be invoked within a directive. Reserved words cannot be used as identifiers (e.g., a declared variable) within a directive or procedure. Use of a reserved word as an identifier may result in a syntax error. The following reserved words are implemented for the ECL:

ACOS	COS	FIND	JUMP	PAGE	SH	TAN
ASIN	COSH	FOP	KILL	PERSISTENTPAGE	SIN	TANH
ATAN	CV	FOR	LOAD	POW	SINH	TIME
BREAK	DEFAULT	GCMR	LOG	PROC	SNAP	TILED
BYE	DO	GO	LOG10	PROMPT	SQRT	TV
CASE	ELSE	GOTO	LOWRED	PV	START	UNTIL
CLOSE	ENABLE	HELP	LOWYELLOW	RCCONFIG	STRING	WAIT
CMD	END	HIGHRED	MODE	RESUME	SUSPEND	TOOL
COMMANDCONFIG	EXP	HIGHYELLOW	MSG	RETURN	SWITCH	WHILE
COS	FABS	if	NCC	ROOM	TAKE	%
int	real	chars	/	INPUTS	OUTPUT	{ }

A.1.2 Declarations and Types

A.1.2.1 Procedures

ECL supports the development and execution of command language procedures. Typically, a procedure consists of a set of directives performing a single function (e.g., place an instrument in safe mode). Procedures begin with a prototype statement and end with a terminating directive. Procedures may accept arguments which are passed by value. Passing of addresses is not supported. A procedure may call another procedure, but recursive procedures are not allowed. In other words, a procedure may not call itself.

Syntax:

PROC procName ([argument [{,argument}]]])

(e.g., Procedure A calls Procedure B; Procedure B then calls Procedure A)

END PROC *procName*

where,

procName = the name of the procedure

argument = optional argument passed to the procedure

Example:

PROC *MyProc* (*int \$A, real \$B*)

ECL provides a set of directives allowing users to control the execution of a procedure. These directives are defined by the following syntax:

Syntax:

START *procName* [TIME=*timeValue*]

GOTO *procLabel*

WAIT [*absoluteTime* | *relativeTime*]

where,

procName = the name of the procedure

timeValue = [[hour:]minute:] second

procLabel = a label defined within the procedure

absoluteTime = hour:minute:second

relativeTime = time value in seconds

Examples:

START XYZ # Start procedure XYZ immediately

START XYZ(6,2) # Start procedure XYZ immediately with parameters

GOTO TopOfLoop # Jump to the label TopOfLoop

WAIT 30 # Wait 30 seconds, then resume procedure execution

The procedure START directive can be entered manually by users or invoked from a procedure. The GOTO and WAIT directives also control the execution of a procedure. These directives can only be executed from within a procedure.

A.1.2.2 Variables

ECL supports the use of local and global variables within a procedure or ground script. There are several types of variables (e.g., integer, string). Local variables are defined within a compound statement (or block). Global variables are used within a procedure to pass status or other values back to the calling body (i.e., procedure or ground script).

Syntax for a local variable:

`int $n = 3` (declaration of local integervariable)

`$n = $n + 1` (increment value after variable has been declared)

where,

`$` indicates local scope

Syntax for a global variable:

`chars $$file = /home/temp` (declaration of global string variable)

`$$file = /home/temp/fot` (reassign value after variable has been declared)

where,

`$$` indicates global scope and type is string

A.1.2.3 Built-In Functions

ECL provides a number of built-in math functions. A built-in function will be invoked in the same manner as a C function. That is, each function will accept arguments (of a specific type) and provide a return value that may be assigned to a variable. Table A-2 identifies built-in ECL functions. The syntax for using a function is as follows:

Syntax:

`functionName ([argument {[,argument]}])`

where,

`functionName` = the name of the built-in function (e.g., sin, cos, strlen)

`argument` = optional argument passed to the function

Examples:

`val 1 = SQRT (10.25)` # Returns the square root of 10.25

`val 2 = SIN (45)` # Returns the sine of 45 degrees

`val 3 = POW(4,2)` # Returns the square of 4

Table A-2. ECL Built-In Functions

Function Name	Description
ACOS	trigonometric arc cosine function
ASIN	trigonometric arc sine function
ATAN	trigonometric arc tangent function
COS	trigonometric cosine function
SIN	trigonometric sine function
TAN	trigonometric tangent function
COSH	hyperbolic cosine function
SINH	hyperbolic sine function
TANH	hyperbolic tangent function
EXP	exponential function
LOG	natural logarithm function
LOG10	base-10 logarithm function
POW	power function
SQRT	non-negative square root function
FABS	returns the absolute value

A.1.2.4 Telemetry Parameter Mnemonics

ECL allows references to telemetry parameter values within a directive. A directive uses a telemetry parameter's mnemonic to reference its value. The mnemonic may be used in comparisons or calculations just as any other variable. However, a mnemonic cannot be used to store the result of an assignment statement. Users may reference either the formatted (default), decoded, or raw value when specifying the telemetry parameter. The formatted value is a converted value, the decoded value is an interim value (not used in AM1)

Syntax:

[F | D | R]@parameter

where,

F | D | R = value type (F = formatted, D = Decoded, R = Raw)

@ = indicates that this is a reference to a parameter

parameter = the parameter mnemonic

Examples:

F@ CDH_BR_ACT_IMOKDIST	# reference the formatted value of the CDH_BR_ACT_IMOKDIST' parameter
R@ CDH_CR_ACT_OSC_SEL	# reference the raw value of the CDH_CR_ACT_OSC_SEL parameter

A.1.3 Programming Constructs

A.1.3.1 Conditional Constructs

ECL supports the use of conditional constructs, including if-then-else and switch-case constructs. If-then-else constructs allow for conditional execution of one or more directives. Note that the else if and else constructs are optional.

Syntax:

```
if (expression)
{
    <directives>
}

[ELSE if (expression)
{
    <directives>
}

ELSE
{
    <directives>
}]
```

The switch-case construct also allows for executing a block of directives. Each block is delineated by a break directive.

Syntax:

```
SWITCH (expression)
```

```
{
```

CASE 1:

```
    <directives>
```

```
BREAK
```

CASE 2:

```
    <directives>
```

```
BREAK
```

.

.

.

CASE n:

<directives>

BREAK

DEFAULT:

<directives>

BREAK

}

The expression in the switch directive must evaluate to an integer value. The default case will be executed if the expression fails to match any specified case. If a break directive is omitted from a case, execution will continue with the directives for subsequent cases until a break directive is encountered, or the end of the switch construct is reached.

A.1.3.2 Loop Constructs

ECL supports three loop constructs. These include while, a do-until, and a for constructs. The while construct specifies a while loop within a command language procedure. The terminal expression is evaluated at the beginning of each pass through the loop. If the expression is evaluated as false, the loop terminates immediately (i.e., execution branches to the first directive following the end of the loop).

Syntax:

WHILE (expression)

{

<directives>

}

The do-until construct specifies an until loop within a command language procedure. The terminal expression is evaluated at the end of each pass through the loop. If the expression is evaluated as true, the loop terminates immediately (i.e., execution branches to the first directive following the end of the loop).

Syntax:

DO

{

```
<directives>
} UNTIL (expression)
```

The for construct specifies a for loop within a command language procedure. An initial expression is executed prior to entering the loop, a terminal expression is evaluated at the beginning of each pass through the loop, and a loop expression is executed at the end of each loop pass. If the terminal expression is evaluated as false, the loop terminates immediately (i.e., execution branches to the first directive following the end of the loop).

Syntax:

```
FOR (initialExpression; terminalExpression; loopExpression)
{
<directives>
}
```

Table A-3 lists ECL directives supported in Release B. These directives are organized by keyword. Each directive is defined in Table A-3 and includes:

- a. The directive keyword.
- b. A brief description of the directive's purpose.
- c. The directive syntax (see conventions below).
- d. Directive examples:
- e. The subsystem that must respond to the directive.

Conventions used to describe the directive syntax are as follows:

- a. Helvetica typeface represents text that must be entered exactly as shown.
- b. *Helvetica italicized text* represent a value chosen by the user from multiple alternative values.
- c. [parm1]* indicates the parameter may be repeated.
- d. alt1 | alt2 |... alternative values listed without square brackets indicates one of multiple alternatives must be provided.
- e. [alt1 | alt2 |...] alternative values listed within square brackets indicates one of multiple optional alternatives. The default alternative is underlined.
- f. -- indicates space.
- g. / indicates continuation lines.

Details regarding each ECL directive are provided in Table A-3.

Table A-3. ECL Directives

Keyword	ARCHIVE
Description	Controls the telemetry archiving mode. The archive directive allows adjustment of the telemetry archiving mode for a particular configuration.
Syntax	ARCHIVE -- -- TLM -- [= ENABLE DISABLE] -- CMD -- [= ENABLE DISABLE] -- EDOS -- [= ENABLE DISABLE] -- NCC -- [= ENABLE DISABLE]
Example	ARCHIVE TLM = ENABLE Sets the telemetry archiving mode to on.
Subsystem	RMS
Keyword	BREAK
Description	Forces termination of the current loop within a procedure.
Syntax	BREAK
Example	BREAK
Subsystem	FUI
Keyword	BYE
Description	Terminates all FOS applications running at the specified user's workstation.
Syntax	BYE
Example	BYE
Subsystem	FUI
Keyword	CLOCK_CORRELATION
Description	START - starts the clock correlation process ADJUST - disable or enable the USCCS generated automated clock adjust command request. When disabled, the projections of anticipated clock error threshold violations are unaffected and continue to be calculated and described in reports. TABLE - disable or enable the USCCS GENERATED AUTOMATED TONS mo_and_clock_table table load update command request. When disabled, the projections of anticipated tons table error threshold violations are unaffected and continue to be calculated and described in reports.
Syntax	<u>CLOCKCORRELATION</u> -- -- START -- STRING = <integerId> -- SPACECRAFTID = <spacecraftId> -- \ -- MODE = <modelId> -- ADJUST -- ENABLE DISABLE -- TABLE -- ENABLE DISABLE CLOCK -- -- END

Table A-3. ECL Directives (continued)

Example	<p>CC START STRING=100 or CC START SPACECRAFTID=AMI MODE=OPS Starts the Clock Correlation process on string 100.</p> <p>CC ADJUST DISABLE Disables the USCCS generated automated clock adjust command request.</p> <p>CC TABLE ENABLE Enables the USCCS generated automated TONS MO_AND_CLOCK_TABLE table load update command request.</p> <p>CLOCK END Ends the Clock Correlation process .</p>
Subsystem	ANA
Keyword	CMD (or /)
Description	Prefix for all spacecraft and instrument real time command directives.
Syntax	CMD (or /) [RAW {base#}] {cmd mnem} [parm]
Example	<p>CMD COM_TURN_OFF_MO1 Turns off the master oscillator 1 power for AM-1.</p> <p>/COM_TURN_OFF_MO1 Turns off the master oscillator 1 power for AM-1.</p>
Subsystem	CMD
Keyword	SCMD (or %)
Description	This directive is not issued manually it is only used to indicate the stored command defined in the ground script and to request the command subsystem to perform execution verification for the command..
Syntax	SCMD -- <stored command>
Example	<p>SCMD COM_TURN_OFF_MO1 Request execution verification for the command that turns off the master oscillator 1 power for AM-1.</p> <p>%COM_TURN_OFF_MO1 Request execution verification for the command that turns off the master oscillator 1 power for AM-1.</p>
Subsystem	CMD
Keyword	<u>COMMANDCONFIG</u>
Description	The COMMANDCONFIG (CMDCFG) directive allows the operator to configure Command parameters. Command and Ground authority are required to enter this directive.
Syntax	<u>COMMANDCONFIG</u> -- --PLOP=1 2 -- [CLTUQTY=<integerConstant>] --RATE=<integerConstant> -- <u>PRIMARY</u> =CTIU-1 CTIU-2 --CLCW=I Q

Table A-3. ECL Directives (continued)

Example	<p>COMMANDCONFIG PLOP = 1 Selects CCSDS physical layer protocol to be 1. See section 9.14.5 for a complete description of PLOP processing.</p> <p>CMDCFG RATE=10000 Select a rate of 10000 bits per second for metering commands to EDOS.</p> <p>CMDCFG PRIMARY=CTIU-1 Direct commands to CTIU-1 on the spacecraft.</p> <p>CMDCFG CLCW=Q Use the CLCWs from channel Q for transfer frame receipt verification.</p>
Subsystem	RMS
Keyword	CV
Description	Enable or disable command verification checking for command directives in the Command Control Window, meaning if a command is sent when CV is off the next command will be processed before command verification is received.
Syntax	CV -- ON OFF
Example	<p>CV ON Enables command verification checking. The default value is ON</p>
Subsystem	FUI
Keyword	DECOM
Description	<p>Controls the decommutation of telemetry parameters. The decom directive allows adjustment of the telemetry decommutation mode for a particular configuration. Available selection types are all, none, subsystem_id, and parameter mnemonic. By using this directive, decommutation for parameters may be turned on or off.</p>
Syntax	DECOM -- SEL=<selectTypeList> -- MODE=ON OFF
Example	<p>DECOM SEL=ALL MODE=OFF Sets the decommutation mode to off for all telemetry parameters.</p> <p>DECOM SEL= GNC_IR_TRUC_MOTOR MODE=ON Sets the decommutation mode to "on" for telemetry parameter GNC_IR_TRUC_MOTOR.</p>
Subsystem	RMS
Keyword	DERIVED
Description	<p>Controls the evaluation and update rate of derived telemetry parameters. The derived directive allows the equation processing intervals to be adjusted. Setting an interval to a value of zero disables derived parameter processing. The equation processing rate is based upon spacecraft time extracted from telemetry.</p>
Syntax	DERIVED -- <mnemonic> -- RATE -- [= <seconds>]
Example	<p>DERIVED COM_NS_HGB_ELPOS RATE=30 Sets the processing rate for telemetry parameter COM_NS_HGB_ELPOS to 30 spacecraft seconds, where s/c seconds = 1.024 sec .</p>
Subsystem	RMS
Keyword	DO-UNTIL
Description	A iteration statement within a procedure.

Table A-3. ECL Directives (continued)

Syntax	DO { <directives> } UNTIL -- (<expression>)
Example	DO { x++ } UNTIL (x > 10) Increments a local variable x until x is greater than 10.
Subsystem	FUI
Keyword	DROPOUT
Description	Controls the sensing rate for the detection of a loss of an input telemetry stream. The dropout directive allows the dropout sensing interval to be displayed and adjusted. Setting the interval to a value of zero disables dropout detection.
Syntax	DROPOUT -- [= <seconds>]
Example	DROPOUT=10 Sets the dropout interval to 10 seconds.
Subsystem	RMS
Keyword	EDOS
Description	The EDOS Communications Test Request will be issued just prior to each spacecraft contact to determine the operational readiness of the EDOS communications link. There will be no user specified fields associated with this message. The outgoing message will be generated using database, and configuration defined information. The user can choose the timeout interval from 5 to 60 seconds. The default timeout interval is 5 seconds.
Syntax	EDOS - - -COMMTEST [TIMEOUT = <integer>]
Example	EDOS COMMTEST
Subsystem	RMS
Keyword	EU
Description	Controls the coefficients for polynomial engineering unit conversion equations of telemetry parameters. Used to change the coefficient values of EU equations. Used to indicate the type of a particular EU conversion.
Syntax	EU -- <mnemonic> -- --SEL = <convId> -- CONVERSION=<convId> --\br/> [C0=<coeffValue>] --\ [C1=<coeffValue>] --\ [C2=<coeffValue>] --\ [C3=<coeffValue>] --\ [C4=<coeffValue>] --\ [C5=<coeffValue>] --\ [C6=<coeffValue>] --\ [C7=<coeffValue>]

Table A-3. ECL Directives (continued)

Example	EU AST_TR_V_VSP1 SEL=2 Selects the second conversion equation for telemetry parameter AST_TR_V_VSP1. EU AST_TR_V_VSP1 CONVERSION=2 C5=10 Sets the C5 coefficient value for the second EU conversion for parameter AST_TR_V_VSP1 if the selected conversion algorithm is a polynomial.
Subsystem	RMS
Keyword	EXPERT_ADVISOR
Description	Disable or enable the Expert Advisor.
Syntax	<u>EXPERTADVISOR</u> -- -- ENABLE --[STRING = <integerConstant>]--\ [VERSION = <characterConstant>] -- DISABLE
Example	EA DISABLE Disables the Expert Advisor.
Subsystem	ANA
Keyword	FIND
Description	With this directive a user can make sure files exist. The results of this directive will be displayed in an event message.
Syntax	FIND -- <directory name> -- <fileName>
Example	FIND Uplink_Dir AM1_Ephemeris.TBL Checks if file 'AM1_Ephemeris.TBL' exists in directory 'Uplink_Dir'.
Subsystem	FUI
Keyword	FOP
Description	The FOP directives permit the operator to initialize and configure the Frame Operation Procedure (FOP) segment of the CCSDS uplink protocol. For a complete description of FOP control and processing, including examples and default values, see section 9.14.4. Command authority is required to use this directive.
Syntax	FOP-- -- <u>INITIATE</u> -- CHECK NOCHECK UNLOCK VR = <nextExpectedFrameSequenceNumber> -- <u>TRANSMIT</u> =<transmissionLimit> -- <u>TERMINATE_AD</u> -- <u>WINDOW</u> =<>windowWidth> -- VS=<nextExpectedFrameSequenceNumber> -- TIMER=<timeoutValueInSeconds>
Example	FOP INIT CHECK Initialize the FOP by checking the next received CLCW for the transfer frame sequence number to use for the first command sent after initialization. Resumes AD service, placing the FOP back into the state it previously was in.
Subsystem	RMS
Keyword	for
Description	Specifies a for loop within a procedure.

Table A-3. ECL Directives (continued)

Syntax	<pre>for -- (<initialExpression>; <terminalexpression>; <loopExpression>) { <directives> }</pre>
Example	<pre>for (x=0; x < 10; x++) { x=x+2; }</pre> <p>This for loop increment the local variable x by 2 until the x value is larger than or equal to 10.</p>
Subsystem	FUI
Keyword	GCMR
Description	The NCC Ground Control Message Request (GCMR) are used to communicate real-time modification requests from the EOC to the NCCDS. Need Ground Control and Command Authority.
Syntax	<pre>GCMR -- -- REACQUISITION -- LINK = <linkId> -- SUPPORT = <supportType> -- SWEEP -- LINK = <linkId> -- EIPRRECONFIG -- LINK = <linkId> -- POWER = <powerMode> -- EXPAND -- LINK = <linkId> -- DOPPLERCOMP -- LINK = <linkId> -- INHIBIT = <inhibitCode> -- RECONFIG -- --MA -- -- FORWARD -- DOPCOMP = <requireId> -- \ [ANTENNA = <antennaType>] -- \ [RATE = <dataRate>] -- \ [FREQ = <frequency>] -- \ -- RETURN -- LINK = <linkId> -- \ [ANTENNA = <antennaType>] -- \ [IRATE = <dataRate>] -- \ [QRATE = <dataRate>] -- \ [FREQ = <frequency>] -- \ [MAXEIRP = <eirpSign>] -- \ [MINEIRP = <eirpSign>] -- \</pre>

Table A-3. ECL Directives (continued)

				[RATIO = <i_q_powerRatio>] --\
				[IFORMAT = <formatId>] --\
				[QFORMAT = <formatId>] --\
				[IJITTER = <bitJitterId>] --\
				[QJITTER = <bitJitterId>] --\
				[G2INVERSION = <inversionId>] --\
				[QG2INVERSION = <inversionId>] --
				[MODE = <modelId>] --\
				[NULLREQ = <>nullFlag>] --\
				[ISTREAM = <streamId>] --\
				[QSTREAM = <streamId>]
		--SSA --	-- FORWARD --	LINK = <linkId> --\
				[ANTENNA = <antennaType>] --\
				[RATE = <dataRate>] --\
				[FREQ = <frequency>] --\
				[POLAR = <polarizationType>] --\
				[PNMOD = <cmdPnModId>]
Syntax (continued)			-- RETURN --	LINK = <linkId> --\
				[ANTENNA = <antennaType>] --\
				[IRATE = <dataRate>] --\
				[QRATE = <dataRate>] --\
				[FREQ = <frequency> --\]

Table A-3. ECL Directives (continued)

				[POLAR = polarizationType] --\
				[MAXEIRP = eirpSign] --\
				[MINEIRP = <eirpSign>] --\
				[RATIO = <i_q_powerRatio>] --\
				[IFORMAT = <formatId>] --\
				[QFORMAT = <formatId>] --\
				[IJITTER = <bitJitterId>] --\
				[QJITTER = <bitJitterId>] --\
				[DATAGROUP = <groupId>] --\
				[IG2INVERSION = <inversionId>] --\
				[QG2INVERSION = <inversionId>] --\
				[ISTREAM = <streamId>] --\
				[QSTREAM = <streamId>]
		--KSA --	RETURN --	LINK = <linkId> --\
				[RATE = <dataRate>] --\
				[QRATE = <dataRate>] --\
				[FREQ = <frequency>] --\
				[POLAR = <polarizationType>] --\
				[MAXEIRP = <eirpSign>] --\
				[MAXEIRP = <eirpSign>] --\
				[MINEIRP = <eirpSign>] --\
				[AUTOTRACK = <autotrackFlag>] --\

Table A-3. ECL Directives (continued)

				[RATIO = <i_q_powerRatio>] --\
				[IFORMAT = <formatId>] --\
				[QFORMAT = <formatId>] --\
				[IJITTER = <bitJitterId>] --\
				[QJITTER = <bitJitterId>] --\
				[DATAGROUP = <groupId>] --\
				[DG1MODE = <modelId>] --\
				[DG2TYPE = <typeId>] --\
				[IG2INVERSION = <inversionId>] --\
				[QG2INVERSION = <inversionId>] --\
				[ISTREAM = <streamId>] --\
				[QSTREAM = <streamId>]
Example	GCMR SWEEP LINK = MA Sends a request to NCC to configure the TDRS session.			
Subsystem	RCM			
Keyword	GO			
Description	Resumes the execution of a procedure that is in a 'WAIT' state.			
Syntax	GO			
Example	GO			
Subsystem	FUI			
Keyword	GOTO			
Description	Causes a branch to the specified label within a procedure.			
Syntax	GOTO -- <label> <lineNumber>			
Example	LABEL_1: : : GOTO LABEL_1			
Subsystem	FUI			
Keyword	HELP			
Description	Displays the Help utilities.			

Table A-3. ECL Directives (continued)

Syntax	HELP
Example	HELP
Subsystem	FUI
Keyword	if-THEN-ELSE
Description	Specifies an if-then-else construct. Allow for conditional execution of one or more directives.
Syntax	<pre>if -- (<expression> { <directives> } [ELSE if -- (<expression> { <directives> })] [ELSE { <directives> }]</pre>
Example	<pre>if (x == 0) { x = 1 }</pre>
Subsystem	FUI
Keyword	IMGCMP
Description	<p>Image compare. Compares two image files or an image file against the ground reference image. The image compare is a word by word compare on an address by address basis. The user also has the ability to indicate the start address, end address, and mask information. Only addresses in common to both images are compared. If either image has a “gap” then the gap is zero filled and the compare continues.</p> <p>All masks are stored in the database and take one of two forms. A “mask” is a start address and number of words pair indicating a segment of memory NOT to be compared. A “mask group” is a set of masks that together make a logical grouping to be applied for one compare type (i.e ATC, RTS, Specific Table, FSW area or MP area) Note, there can be multiple mask groups applied to one compare request and there is no limit on the number of mask groups only the names must be unique. If the mask is outside the range of the image compare addresses it has no effect. The database tables for the mask information are cmd_maskgrp_pdb and cmd_mmask_pdb.</p>
Syntax	<pre>IMGCMP -- < ATC RTS TABLE FS MP > -- \ -- DUMP =<imageFile1> -- \ DUMP LOAD =<imageFile2> -- \ [MASK=<maskFileName>] -- \</pre>

Table A-3. ECL Directives (continued)

	<pre> [START=<startAddress> END=<endAddress>] --\ -- GROUND -- \ DUMP LOAD =<imageFile1> -- \ [MASK=<maskFileName>] -- \ [START=<startAddress> END=<endAddress>] -- \ [TABLE = <tableName>] [RTS = <rtsName>] -- \ -- LOAD =<imageFile1> -- \ LOAD =<imageFile2> -- \ [MASK=<maskFileName>] -- \ [START=<startAddress> END=<endAddress>] -- \ </pre>
Example	<pre>IMGCMP RTS GROUND DUMP=file1.dmp MASK = mask1.msk RTS=RTS085 OUTPUT=compare.rpt</pre> <p>Compares dump image file 'file1.dmp' with ground image file RTS085, writes result to compare.rpt.</p>
Subsystem	CMS
Keyword	IMGOVER
Description	<p>Image overwrite. Overwrites ground image file with either a dump image or load image file. The image overwrite is performed on an address by address basis. If the original image does not contain any data in the address range of the new image, the new image is appended to the original image. Any region between the original and new image will be padded with zero value words. If the two images overlap anywhere the value of the word at the overlapping addresses in the new image is copied to the original image.</p> <p>The image files will be checked to make sure it is for the designated region of spacecraft memory. For example, an image from the ATC buffer could not be used to update the RTS ground reference image or an image from a table load could not be used to update the ATC buffer ground reference image. There are no restrictions or checks against using an image to update the wrong address within the ground reference image. For example, there is nothing to stop the user from using an image from a dump of RTS Buffer 20 to update the ground reference image for RTS buffer 40.</p>
Syntax	<pre>IMGOVER < ATC RTS TABLE FS MP > -- \ DUMP LOAD=<imageFile1> -- \ [START=<startAddress> END=<endAddress>] -- \ [TABLE = <tableName>] [RTS = <rtsName>]</pre>
Example	<pre>IMGOVER ATC DUMP=file1 START = 228 END = 1047</pre> <p>Overwrites ATC ground reference image with dump image file 'file1' from address 228 to 1047.</p>
Subsystem	CMS

Table A-3. ECL Directives (continued)

Keyword	IMGRPT
Description	Image report. Generates report of load or dump or ground reference image contents. The report can be viewed from the Report Generator tool or by going to the report directory and opening the report in an editor, or produce a hard copy using the UNIX print directive on the .rpt file.
Syntax	IMGRPT -- < ATC RTS TABLE FS MP >-- --<fileName> -- [START=<startAddress> --\ END=<endAddress>] -- GROUND -- [START=<startAddress> --\ END=<endAddress>]
Example	IMGRPT RTS file1 Generates RTS report of 'file1' contents.
Subsystem	CMS
Keyword	MUN
Description	Sends a manual uplink notification to CMS. The notification is used by CMS to update the load catalog, the image model, and the spacecraft model for the load that was uplinked. Normally, this notification is sent automatically by the real time system to CMS. This directive was created to allow the FOT to manually update CMS. This should only be needed if something happened and CMS was not running when the load was actually uplinked or it did not receive the automatic notification. This command can be entered into the control window. Command or Ground Control authority is not needed to execute this command.
Syntax	MUN <complete load name> yyyy:ddd:hh:mm:ss.mmm
Example	MUN AM1_TBL_1204010_01_OF_01 1997:345:12:30:00.000.
Subsystem	CMS
Keyword	KILL
Description	Kills an executing procedure.
Syntax	KILL -- <procedure name>
Example	KILL XYZ Terminate procedure XYZ.
Keyword	LIMITS
Description	Controls the limit sensing of telemetry parameters. Used to enable/disable reporting limit messages and alarms. Used to change individual limit values and to control the frequency of limit messages.
Syntax	LIMITS -- -- <mnemonic> -- -- DELTA =<limitValue> -- FREQUENCY=<freqValue> -- <RAW EU> -- SEL=<selValue> -- <RAW EU> -- GROUP=<groupId> -- TYPE=<limitType> -- \ [HL=<limitValue>]-- \ [LL=<limitValue>]

Table A-3. ECL Directives (continued)

	<pre> -- ON OFF -- [MESSAGE=ON OFF] -- [ALARM=ON OFF] -- <subsystem> -- -- ON OFF -- [MESSAGE=ON OFF] -- [ALARM=ON OFF] -- ON OFF -- [MESSAGE=ON OFF] -- [ALARM=ON OFF] </pre>
	<p>LIMITS ON Turns alarms and messages on for all subsystems.</p> <p>LIMITS ASTON Turns alarms and messages on for ASTER subsystem.</p> <p>LIMITS AST_TR_V_MOTOR DELTA=10 Sets the delta limit for parameter AST_TR_V_MOTOR to 10.</p> <p>LIMITS RAW SEL=3 Selects range limit group three for telemetry parameter 12345 AST_TR_V_MOTOR.</p> <p>LIMITS AST_TR_V_MOTOR RAW GROUP=2 TYPE=YELLOW LL=10 Sets the yellow-low value for the second group of range limits for AST_TR_V_MOTOR if that group checks raw telemetry values.</p>
Subsystem	RMS
Keyword	LOAD
Description	Initiates a memory load. The load Id that will be uplinked can be entered as actual file name or a string variable. The partition indicator and partition amount can be entered as an integer or an integer variable.
Syntax	LOAD -- <loadId> -- <partitionIndicator> -- <partitionAmount>
Example	<pre>LOAD AM1_RTS_SAFETYSEQUENCE_3_OF_5 Loads AM1_RTS_SAFETYSEQUENCE_3_OF_5 (partition number 3 of 5).</pre> <pre>LOAD \$file \$x \$y Loads AM1_RTS_SAFETYSEQUENCE_3_OF_5 (partition number 3 of 5) - where \$file was declared as AM1_RTS_SAFETYSEQUENCE and \$x and \$y were declared as 3 and 5 respectively.</pre>
Subsystem	CMD

Table A-3. ECL Directives (continued)

Keyword	MODE
Description	Sets the command confirmation mode in the Command Control window for ground script or procedure execution. When set to STEP, each command directive must be confirmed by either a subsequent send or cancel directive. If set to AUTO the directives will be executed without user confirmation except in the case of critical commands or PSC failures, or manually entered directives. The default mode is AUTO.
Syntax	MODE -- AUTO STEP
Example	MODE STEP Sets the command confirmation mode to STEP.
Subsystem	FUI
Keyword	MSG
Description	Generates a user-specified event message. This directive is also used to define comments in a procedure, activity or ground script.
Syntax	MSG -- <messageText>
Example	MSG "Pre-pass briefing in 5 minutes."
Subsystem	FUI
Keyword	NCC
Description	The NCC Communications Test Request will be issued just prior to each spacecraft contact to determine the operational readiness of the NCC communications link. There will be no user specified fields associated with this message. The outgoing message will be generated using database and configuration defined information stored in ODF files. The NCC User Performance Data Request message provides the EOC with the capability to enable or disable the User Performance Data Message. Need Ground Control and Command Authority
Syntax	NCC -- -- COMMTEST – GCMR UPD -- UPD – ENABLE DISABLE
Example	NCC COMMTEST UPD Send a communication test message to NCC UPD Service. NCC COMMTEST GCMR Send a communication test message to NCC Reconfig Service. NCC UPD ENABLE Send a UPD enable request to NCC UPC Service.
Subsystem	RMS
Keyword	<u>PACKETGEN</u>
Description	Testing tool allows for updating of telemetry by executing FtPgPackGen. Note: Before STARTDATA is sent to the packet generator, the user must send a CONFIG directive to specify the host and port for a stream. dataArea = SERVICE PRIMARY SECONDARY DATA

Table A-3. ECL Directives (continued)

Syntax	<u>PACKETGEN</u> -- -- STARTDATA – APID = <apidValue> --\n -- [COUNT = <count>] --\n -- [FILE = <dumpValueFile>]\n \n -- STOPDATA – APID = <apidValue>\n \n -- CHANGE -- PID = <pidValue> -- VALUE = <dataValue> -- APID = <apid> --\n -- [PKTNO = <pktNumber>] --\n -- [OCCUR = <occurrence>]\n \n -- CHANGE -- AREA = <dataArea> -- OFFSET = <offset> -- \n -- LENGTH = <length> -- \n -- VALUE = <value time> --\n -- APID = <apidValue>\n \n -- FREEZE – PID = <pidValue>\n \n -- THAW -- PID = <pidValue>\n \n -- RATE -- PID = <pidValue> -- VALUE = <value>\n \n -- DELAY – MILLS = <milliseconds> -- APID = <apidValue>\n \n -- ARCHIVE – ON OFF\n \n -- CONFIG – HOST = <host ipAddress> -- PORT = <port> --\n -- APID = <apidValue>\n \n -- DROP – PKTNO = <pktNumber> -- APID = <apidValue> --\n -- [MASTER = masterValue]\n \n -- PICKUP – PKTNO = <pktNumber> -- APID = <apidValue>\n \n -- INFO -- <TLMPID = <tlmpid> FOSPID = <fospid> \n -- MNEMONIC = <mnemonic>
Example	<u>PACKETGEN</u> STARTDATA APID = 1 COUNT = 100 Starts a stream of data. <u>PACKETGEN</u> STOPDATA APID = 1 Stops a stream of data. <u>PACKETGEN</u> CHANGE PID =1078 VALUE = 255 APID = 1 PKTNO = 28 OCCUR = 2 Changes the value of the second occurrence of PID 1078 in packet number 28 to 255.

Table A-3. ECL Directives (continued)

	<u>PACKETGEN</u> CHANGE AREA = data OFFSET = 1 LENGTH = 16 VALUE = 255 Changes the value of all occurrences of the PID at the above offset and length in all packets to 255. PACKETGEN CHANGE AREA = primary OFFSET = 10 LENGTH = 64 VALUE = 1997:224:12:12:12.222 Changes the value of the PID at the above offset and length to indicated time. PACKETGEN INFO MNEMONIC = COM_IR_SBT1_RCVR Displays information about requested parameter.
Subsystem	TLM
Keyword	PAGE
Description	This directive controls the pages in a room. With this directive a user may open, close, delete, freeze, unfreeze, move and resize, set the update rate, raise, lower, iconify and restore a page.
Syntax	PAGE-- --<pageName> (OPENS pageName) --CLOSE-- --<pageName> --ALL --PID = <pageId> --DELETE--<pageName> --FREEZE-- --<pageName> --ALL --UNFREEZE-- --<pageName> --ALL --MOVERESIZE--<pageName>--<x>--<y>--<width>--<height> --UPDATERATE--<pageName> ALL--<rate> --RAISE--<pageName> --LOWER--<pageName> --ICONIFY--<pageName> --RESTORE--<pageName>
Example	PAGE CLOSE ALL Closes all the pages on screen. PAGE MiPower Opens the MiPower page in the current room. PAGE FREEZE MiPower Freezes the MiPower page (all page display updates are suspended).
Subsystem	FUI
Keyword	PROMPT
Description	Prompts user for a Yes/No response to a question.

Table A-3. ECL Directives (continued)

Syntax	PROMPT, -- <questionText>, -- <answerVariable>
Example	PROMPT, 'Shut down MISR Cameras (Y/N)?', \$confirmFlag
Subsystem	FUI
Keyword	PSC
Description	Enable or disable prerequisite state checking. PSC commands are defined in the database in the cmd_pstate_pdb table. This table provides transmission criteria for commands. Each command requiring prerequisite state checking may specify up to 4 discrete telemetry parameters. Transmission of a command can only occur when all parameters specified for the command occur within their defined range.
Syntax	PV -- [ON OFF]
Example	PSC ON
Subsystem	RMS/FUI
Keyword	RCCONFIG
Description	The Real-Time Contact Ground Configuration Change Request is issued when the user wishes to change the value of a particular user controllable real-time contact ground configuration parameter. User controllable parameters are TDRS, ID an Archiving status
Syntax	RCCONFIG -- STRING = <stringId> -- -- TDRS = <tdrsId> -- EDOSARCHIVE NCCARCHIVE = ON OFF
Example	RCCONFIG STRING = 123 TDRS=TDE Reconfigures TDRS id to TDE for string 123 in RCM subsystem. RCCONFIG STRING = 123 EDOSARCHIVE = ON Turns on EDOS archive mode for string 123 in RCM subsystem.
Subsystem	RCM
Keyword	REQUESTMANAGER
Description	SHOWID - returns the local workstation's id. SHOWSTATE - returns the current state of the Request Manager for a specified workstation. The state of a Request manager is the classification of Analysis Requests the Request manager will allow to be processed on its workstation. The possible states are: INACTIVE - the local workstation will not accept any Analysis Requests to be processed LOCAL - the local workstation will accept only locally constructed Analysis Requests to be processed. EOC - the local workstation will accept for processing only those Analysis Requests constructed from an EOC workstation GLOBAL - the local workstation will accept for processing an Analysis Request constructed from either IST or EOC workstations. CHANGESTATE - changes the state of the specified workstation from its current state to a specified state.
Syntax	REQUESTMANAGER -- -- SHOWSTATE -- [<localWorkstationId> <workstationId>] -- CHANGESTATE -- CURRENT=<currentState> -- \ NEW=<newState> -- \ [<localWorkstationId> <workstationId>]

Table A-3. ECL Directives (continued)

Example	<p>RM SHOWSTATE 32 Returns the state of the Request Manager on workstation 32.</p> <p>RM SHOWSTATE Returns the state of the Request Manager on the local workstation.</p> <p>RM CHANGESTATE CURRENT = INACTIVE NEW = _LOCAL Changes the state of the Request Manager on the local workstation from INACTIVE to LOCAL.</p> <p>RM CHANGESTATE CURRENT = INACTIVE NEW = EOC 32 Changes the state of the Request Manager on workstation 32 from INACTIVE to EOC.</p> <p>NOTE: only the CAC can change the state of a non-local EOC workstation.</p>
Subsystem	ANA
Keyword	RESUME
Description	Resumes the execution of a suspended procedure.
Syntax	RESUME -- <procedureName>
Example	RESUME XYZ Resume execution of procedure XYZ.
Subsystem	FUI
Keyword	RETURN
Description	Exits a nested procedure.
Syntax	RETURN
Example	RETURN
Subsystem	FUI
Keyword	ROOM
Description	This directive controls the room in a user's environment. A user may change to the default, modified or tiled state of a room using the button options on the Control window. This directive allows a user to delete, and open a room. To define or modify a Room use the Room Builder Tool.
Syntax	ROOM-- --<roomName>- --DELETE--<roomName>
Example	ROOM MiCam2 Displays the room MiCam2 in the last state the room was in when the user exited the room. ROOM MiCam2 DELETE Deletes the room MiCam2 .
Subsystem	FUI
Keyword	SH
Description	Executes a UNIX shell command.
Syntax	SH -- <unixCommand>
Example	SH 'cp file1 file2'

Table A-3. ECL Directives (continued)

	Copies file1 to file2.
Subsystem	FUI
Keyword	START
Description	Starts the execution of a procedure. This directive can be entered manually by a user or invoked from a procedure. Other options allow a user to specify the execution time, procedure location, and to indicate whether it is an emergency procedure. By default, starting a procedure will invoke the Procedure Control window. A user may run the procedure in the background by appending an ampersand (&) to the START directive.
Syntax	<p>Release A:</p> <pre>START -- <procedureName> -- [TIME = <timeValue>]</pre> <p>Release B:</p> <pre>START -- <procedureName> -- [TIME = <timeValue>] --\</pre>
Example	<pre>START XYZ TIME=23:00:00</pre> <p>Starts a procedure XYZ (operational version) at time 23:00:00.</p> <pre>START XYZ(4,1)</pre> <p>Starts a procedure XYZ with parameters</p> <pre>START ABC</pre> <p>Starts a procedure ABC</p>
Subsystem	FUI
Keyword	STATECHECK
Description	Controls the execution of spacecraft state checking and capturing.
Syntax	<pre>STATECHECK -- -- BASELINE</pre> <pre> -- EVALUATE</pre> <pre> -- LOAD -- [TIME = <YYYY:DDD:HH:MM:SS.sss>]</pre> <pre> -- CHANNEL = <channelType></pre>
Example	<pre>STATECHECK BASELINE</pre> <p>Replaces the expected state table values with current telemetry values.</p> <pre>STATECHECK EVALUATE</pre> <p>Starts spacecraft state check comparison.</p> <pre>STATECHECK LOAD</pre> <p>Selects current table to be used as the expected state.</p> <pre>STATECHECK LOAD TIME = 1997:230:12:30:20.000</pre> <p>Selects table from 1997 day 230 at 12:30 and 20 seconds to be used as expected state.</p>

Table A-3. ECL Directives (continued)

	STATECHECK CHANNEL = Q Selects channel Q to be the input source for parameters to be state checked.
Subsystem	TLM
Keyword	STRING
Description	<p>The STRING CREATE request is used to employ EOC resources by establishing a logical string. An individual must be eligible to receive Ground Control Authority before issuing the directive. Typically the user that issues the directive will want to take Ground Control Authority after creating the string. If the Database ID is not specified, the default database will be used. The default database will be the current database.</p> <p>The STRING DELETE request is used to free EOC resources by eliminating a logical string. Only the Ground Controller can issue this directive. The STATE keyword is optional. If none is specified, it will default to Active. The other options are Backup and Inactive. For example, if the user would like to delete the Backup processing for a string, then the user would specify the state to be BACKUP. If a user would like to delete the Active processing for a string, there cannot be any Backup or Inactive processing, and the user would not have to specify any State at all.</p> <p>The STRING CONNECT request is used to associate a user workstation with an established logical string. The CONNECT request implies that resources on the local workstation may be employed to provide the connection to the requested service.</p> <p>The user is required to specified a string identifier for the string with which a connection is desired. The user is also required to specify the type of connection that is desired. A mirrored connection indicates that the user wishes to assume the configuration that is defined by the Ground Controller for that particular logical string. A tailored connection indicates that the user wishes to tailor the configuration of the local resources to specifications that differ from those of the Ground Controller.</p> <p>The STRING DISCONNECT request is used to disassociate a user workstation with an established logical string.</p> <p>The STRING FAILOVER request is used to transfer control of an FOS spacecraft from active processing to backup processing for a particular string. . First, the active processing is changed to an inactive state. . Then the state of the backup processing is changed to active. This procedure ensures that there is no more than one valid command path for, for a spacecraft at a given time. After the backup processing has been failed over to active, the inactive processing is deleted. Only the Ground Controller can issue this directive.</p>
Syntax	<pre>STRING -- --CREATE -- --REALTIME -- -- SPACECRAFTID = <spacecraftId> --\ [DATABASEID = <databaseId>] -- \ MODE = <modelId> -- \ SERVER = <real-timeServerId> - -SIMULATION - - - - SPACECRAFTID = <spacecraftId> -- \ [DATABASEID = <databaseId>] -- \ MODE = <modelId> -- \ SERVER = <real-timeServerId></pre>

Table A-3. ECL Directives (continued)

	<pre> -- BACKUP -- SERVER = <real-timeServerId> -- STRING = <stringId> -- DELETE --STRING = <stringId> -- \ [STATE = ACTIVE BACKUP INACTIVE] -- CONNECT --STRING = <stringId> -- CONFIG = <configType> -- DISCONNECT --STRING = <stringId> -- FAILOVER --STRING = <stringId></pre>
Example	<p>STRING DELETE STRING = 12 Removes the active processing for logical string 12.</p> <p>STRING CREATE BACKUP SERVER = 3 STRING = 12 Establishes backup processing for logical string 12 on a different real-time server.</p>
Subsystem	RMS
Keyword	SUSPEND
Description	Suspends the execution of a procedure.
Syntax	SUSPEND -- <procedureName>
Example	SUSPEND XYZ Suspend procedure XYZ.
Subsystem	FUI
Keyword	SWITCH-CASE
Description	A multiway branch based on the value of a control expression.
Syntax	<pre> SWITCH -- (<expression>) { [CASE -- <constantExpression>: <directives>]* [DEFAULT: <directives>] }</pre>
Example	<pre> SWITCH (\$flag) { CASE 0: \$flag = 1 # Sets the global variable flag to 1 if it is 0. BREAK CASE 1: \$flag = 0 # Sets the global variable flag to 0 if it is 1. BREAK }</pre>

Table A-3. ECL Directives (continued)

Subsystem	FUI
Keyword	TBLCMP
Description	Table compare. Compares table dump image with database defined table default values. (see IMGCMP directive for a complete description of image comparison.)
Syntax	TBLCMP -- <tableDumpFile>
Example	TBLCMP AM1_TBL_TABLE1.DMP Compares table dump image file 'AM1_TBL_TABLE1.DMP' with database defined default values for table 'TABLE1'.
Subsystem	CMS
Keyword	TAKE
Description	The TAKE Privilege Request will be issued by an FOT user for the purpose of acquiring the specified privilege. A different authorization is required for each individual privilege. When the directive is issued, a sybase table containing the list of authorized users and workstations is referenced. If the user and workstation are listed in the table, the privilege is granted. The Command Privilege will allow a user to send commands to the spacecraft. The Ground Control Privilege will allow a user to modify the configuration of the ground system. This includes deleting strings and making configuration changes to string processes.
Syntax	TAKE -- -- COMMAND – STRING = <stringId> -- GROUNDCONTROL – STRING = <stringId>
Example	TAKE GROUNDCONTROL STRING =100
Subsystem	RMS
Keyword	TOOL
Description	The TOOL directive allows user to activate one of the FUI-provided tools.
Syntax	TOOL - - - - Analysis_Request_Builder - - Analysis_Status - - ATC_Buffer_Display - - Command_Control - - Command_Request - - Data_Mover - - Display_Builder - - Doc_Reader - - E_Mail - - Event_Display_Global - - Event_Display_Local - - GS_Display - - Load_Manager - - Procedure_Builder - - Quick_Analysis - - Quick_Message - - Replay_Control - - Report_Browser - - Room_Builder

Table A-3. ECL Directives (continued)

	<ul style="list-style-type: none"> - - RTS_Buffer_Display - - RTS_Load_Builder - - Standing_Order_Browser - - Table_Load_Builder - - User_Customization
Example	TOOL Procedure_Builder Activates the procedure builder. This directive can be entered from the Control Window, executed in a procedure.
Subsystem	FUI
Keyword	TV
Description	Enable or disable telemetry verification checking for command directives in the Command Control Window, meaning if a command is sent when TV is off the next command will be processed before telemetry verification is received.
Syntax	TV -- [ON OFF]
Example	TV ON
Subsystem	FUI
Keyword	WAIT
Description	Causes execution of a command procedure or ground script to pause. Execution will resume when either the time condition is reached, the expression evaluates to true, or a "GO" directive is encountered. The wait duration may be an absolute time, a relative time, or based upon a conditional statement. It can only be executed from within a procedure.
Syntax	WAIT -- [(<conditionalStatement>) <hh:mm:ss> <sss>]
Example	<p>WAIT (@GNC_VR_ST2_P5V == 1) Waits until the telemetry parameter is equal to 1.</p> <p>WAIT 23:00:00 Waits until the absolute time 23:00:00 is reached.</p> <p>WAIT 30 Waits for 30 seconds.</p> <p>WAIT Referred to as a hard wait. Waits until a "GO" directive is issued.</p>
Subsystem	FUI
Keyword	WHILE
Description	An pre-test iteration statement within a procedure.
Syntax	<pre>WHILE (<expression>) { <directives> }</pre>

Table A-3. ECL Directives (continued)

Example	WHILE (x <= 10) { x++ } While x is less than or equal to 10, increments the local variable x.
Subsystem	FUI

A.2 CSTOL Translator

The CSTOL Translator converts OASIS directives into ECL directives. The CSTOL Translator is accessed via the UNIX command line.

1. To convert an OASIS file, open an xterm window, change to the directory where the FuCsTranslate executable resides, currently ..//fosb/test/am1/bin and enter the following:

`FuCsTranslate -i directory path/input file -o destination directory path/output file`

2. Check the results of the translation by opening the file in a text editor, such as vi or emacs.

`vi directory path/output file`

The translated file contains a header explaining how to read the translation results and listing the number of errors and warnings. Comments from the CSTOL file that were carried over and new comments, added to assist the user in manually translating OASIS directives that could not be converted to ECL, are flagged.

3. Edit any OASIS directives which could not be translated or add new ECL directives in the text editor and save the file.
4. Open the file in the Procedure Builder to make additional modifications, validate and syntax check the directives.

This page intentionally left blank.

Appendix B. Event Message Definitions

Table B-1 lists the event definitions used in the FOS system as of November 18, 1997. The following is a list of definitions of the column names:

The **ID** column indicates the event number. This number is generated every time a new event is created.

The Event **Type** indicates one of the FOS subsystems where: ANA=1, CMD=2, CMS=3, DMS=4, FUI=5, PAS=6, RCM=7, RMS=8, SYS=9, or TLM=10.

The Event **Name** is a string. This field should follow the FOS naming convention for events (2-character subsystem ID, "CEv", Descriptive Name). An example of a DMS event is, FdCEvInvalidUserRequest.

The **Background** Text stored in the Events Definitions file should contain %s where a string needs substitution, a %d where an integer needs substitution, and a %t where time needs substitution. An example of a background text is "Printer %s Failed". The %s is filled by the application generating the event.

The **Severity** column indicates the severity of the event. Valid severities are Fatal(4), Alarm(3), Warning(2), and Informational(1).

The **Trigger** is the name of a procedure or executable associated with an event. For most events this field will be blank.

The **Process** Routing Name is the name of the process event that needs to be routed. For most events this field will be blank.

Table B-1. Event Message Definitions

ID	Type	Name	Background	Severity	Trigger	Process
1	1	FaCEvRTDataServInit	RTworks Data Server has started	2		
2	1	FaCEvRTDataServInit	RTworks ERROR - Refer to %s.	3		
3	1	FaCEvRTDataServInit	Analysis Request %i has started on host %s	2		
4	1	FaCEvRTDataServInit	The Analysis Process %i on host %s has failed. The reason is: %s	2		
5	1	FaCEvRTDataServInit	The Analysis Process %i has successfully completed on host %s.	2		
6	1	FaCEvRTDataServInit	Analysis Request Manager started on host %s.	2		
7	1	FaCEvRTDataServInit	Analysis Request Manager stopped on host %s.	2		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
8	1	FaCEvRTDataServInit	Analysis Request Manager changed state to %s on host.	2		
9	1	FaCEvRTDataServInit	The analysis process %s encountered an invalid parameter request for PID %i	2		
10	1	FaCEvRTDataServInit	%s on host %s cannot start Analysis Request %i. Reason: %s	4		
11	1	FaCEvRTDataServInit	RTworks Data Server has stopped.	2		
12	1	FaCEvRTDataServInit	A USCCS clock error calculation was made for %s. The average error for the tracking service is %r microseconds, accurate to 7 mi	1		
13	1	FaCEvRTDataServInit	The Current RDD clock error for %s in %r milliseconds, accurate to 20 milliseconds.	1		
14	1	FaCEvRTDataServInit	An RDD clock error calculation was made for %s. The average error for the recent contact is %r milliseconds, accurate to 20 mill	1		
15	1	FaCEvRTDataServInit	The Current RDD clock error for %s is %r milliseconds, accurate to 20 milliseconds	1		
16	1	FaCEvRTDataServInit	The low-resolution RDD method has detected a non-zero clock error for %s, implying that the SC clock bias for has exceeded missi	1		
17	1	FaCEvRTDataServInit	Cannot open file %s for write	2		
18	1	FaCEvRTDataServInit	No parameters specified in Analysis Request %i	2		
19	1	FaCEvRTDataServInit	Error opening %s	2		
20	1	FaCEvRTDataServInit	Error getting the packet time pid	4		
21	1	FaCEvRTDataServInit	Error reading %s, partial data loss possible	2		
22	1	FaCEvRTDataServInit	Error obtaining offsets for pid %i	2		
23	1	FaCEvRTDataServInit	No offsets available for selected pids	4		
24	1	FaCEvRTDataServInit	Could not set file pointer	4		
25	1	FaCEvRTDataServInit	Dataset request only partially filled due to %s	2		
26	1	FaCEvRTDataServInit	Error getting orbit data from database	4		
27	1	FaCEvRTDataServInit	Daily stats data file not found	4		
28	1	FaCEvRTDataServInit	Error reading meta data for %s	3		
29	1	FaCEvRTDataServInit	Error getting pids from %s	4		
30	1	FaCEvRTDataServInit	Error adding pid %1 to analysis parameter list	2		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
31	1	FaCEvRTDataServInit	Pid %i is not a valid parameter type for statistics	2		
32	1	FaCEvRTDataServInit	Error writing pid %i to %s	2		
33	1	FaCEvRTDataServInit	Error generating %s stats for %s	2		
34	1	FaCEvRTDataServInit	Error getting data from %s	4		
35	1	FaCEvRTDataServInit	The Analysis Request %i on host %s found no data for the timespan %s to %s	2		
36	1	FaCEvRTDataServInit	Analysis Request %i. No statistical interval expired during request time span. No statistical data generated.	2		
37	1	FaCEvRTDataServInit	CDH_SET_SSR1_SCRPLY 0 %i %i %i	2		
38	1	FaCEvRTDataServInit	Activity log dump processing complete with %d new messages and %d severe message.	1		
39	1	FaCEvRTDataServInit	SCC Activity Log Severe Msg : %s.	3		
40	1	FaCEvRTDataServInit	SCC Activity Log Msg : %s	1		
41	1	FaCEvRTDataServInit	Failed to write to file: %s	3		
42	1	FaCEvRTDataServInit	The current Request Manager state for %s is %s	1		
43	1	FaCEvRTDataServInit	Clock Correlation for stringID %d could not calculate Master Oscillator frequency values	2		
44	1	FaCEvRTDataServInit	The Clock Correlation Process for stringID %d could not calculate Master Oscillator frequency values	2		
45	1	FaCEvRTDataServInit	The Master Oscillator frequency values calculated by the Clock Correlation Process for stringID %d, may be inaccurate	2		
46	1	FaCEvRTDataServInit	USCCS Clock Correlation for stringID %d failed. Description follows: %s	2		
47	1	FaCEvRTDataServInit	Successfully generated clock correlation load %s	1		
48	1	FaCEvRTDataServInit	Failed to generate clock correlation load. Reason: %s	3		
49	1	FaCEvRTDataServInit	The Clock Correlation process for stringID %d has received and ignored an unknown Ground Message.	2		
50	1	FaCEvRTDataServInit	%s processing Spacecraft Contact Session report %s	1		
51	1	FaCEvRTDataServInit	%s failed processing Spacecraft Contact Session report %s : %s	1		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
52	1	FaCEvRTDataServInit	%s successfully processed Spacecraft Contact Session report %s.	1		
53	1	FaCEvRTDataServInit	Failed to delete the replay string ID=%d for Analysis Request ID=%d	2		
54	1	FaCEvRTDataServInit	The SSR Manager has started	2		
55	1	FaCEvRTDataServInit	The DSS Manager has started	2		
56	1	FaCEvRTDataServInit	DSS detects AM-1 in stable Safehold mode	3		
57	1	FaCEvRTDataServInit	DSS detects AM-1 in UNSTABLE Safehold mode due to %s	3		
58	1	FaCEvRTDataServInit	DSS detects telemetry quality in nominal state	1		
59	1	FaCEvRTDataServInit	DSS detects telemetry quality in SUSPECT state due to %s	3		
60	1	FaCEvRTDataServInit	Clock Correlation is starting for string %d	1		
61	1	FaCEvRTDataServInit	Clock Correlation starting for string %d	1		
1000	2	FaCEvRTDataServInit	Format Command Controller database %s is %s -- aborting.	4		
1001	2	FaCEvRTDataServInit	Format Command Controller process communication error: %s.	2		
1002	2	FaCEvRTDataServInit	Invalid User ID %s -- user not authorized (expected User ID %s).	4		
1003	2	FaCEvRTDataServInit	Invalid Workstation ID %s -- workstation not authorized (expected Workstation ID %s).	4		
1004	2	FaCEvRTDataServInit	Command %s was not found in the Format Command Controller database.	2		
1006	2	FaCEvRTDataServInit	Aster command: %s	2		
1007	2	FaCEvRTDataServInit	Stored command %s not found in command ODF	4		
1009	2	FaCEvRTDataServInit	Lost fui connection on interface %s	3		
1010	2	FaCEvRTDataServInit	More than one fui interface exists on interface %s	3		
1011	2	FaCEvRTDataServInit	Format Command Controller process is exiting: %s.	2		
1012	2	FaCEvRTDataServInit	Format Command Controller process is exiting %s.	4		
1014	2	FaCEvRTDataServInit	FOP Command process started: %s	1		
1015	2	FaCEvRTDataServInit	FOP Command process initialization Failed due to %s	4		
1016	2	FaCEvRTDataServInit	Select CTIU failed due to %s	3		
1017	2	FaCEvRTDataServInit	FOP Command process stopped: %s	2		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
1018	2	FaCEvRTDataServInit	Load %s has been successfully uplinked and verified	1	Null	Load Catalog, Memory Image, Spacecraft Model
1019	2	FaCEvRTDataServInit	CLTU id %s placed in command data block number %d	1		
1020	2	FaCEvRTDataServInit	Command Data Block number %d sent to EDOS	1		
1022	2	FaCEvRTDataServInit	Command %s sent with the sequence number %d.	1		
1023	2	FaCEvRTDataServInit	%s, current VR is %d.	1		
1024	2	FaCEvRTDataServInit	Unlock command sent, %s.	1		
1025	2	FaCEvRTDataServInit	%s, the current value is %s.	3		
1026	2	FaCEvRTDataServInit	FOP protocol alert, %s.	2		
1027	2	FaCEvRTDataServInit	FOP protocol suspend, %s.	1		
1028	2	FaCEvRTDataServInit	Command %s validation failed.	2		
1032	2	FaCEvRTDataServInit	Command %s had no prerequisites specified.	1		
1033	2	FaCEvRTDataServInit	Command %s is CRITICAL.	2		
1036	2	FaCEvRTDataServInit	Command %s prerequisite check failure: No telemetry data available.	2		
1038	2	FaCEvRTDataServInit	Received response %s for command %s -- OVERRIDING prerequisite check.	1		
1039	2	FaCEvRTDataServInit	Received response %s for command %s -- prerequisite check NOT OVERRIDED.	1		
1040	2	FaCEvRTDataServInit	Critical command %s was ALLOWED.	1		
1042	2	FaCEvRTDataServInit	Command %s was successfully built with binary = %s.	1		
1044	2	FaCEvRTDataServInit	The Catalog Entry process is NOT running	2		
1045	2	FaCEvRTDataServInit	There is NO Catalog Entry for the following load: %s	2		
1046	2	FaCEvRTDataServInit	There is NO data for the following load: %s	2		
1047	2	FaCEvRTDataServInit	There is NO load file for the following load: %s	2		
1048	2	FaCEvRTDataServInit	The time (%f) of load %s uplink falls outside time window [%f, %f].	2		
1049	2	FaCEvRTDataServInit	The load %s intended for spacecraft %s is different from current spacecraft %s	2		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
1050	2	FaCEvRTDataServInit	Out-of-order override for partition: %s	1		
1051	2	FaCEvRTDataServInit	Received CANCEL response for: %s	1		
1052	2	FaCEvRTDataServInit	The following load/partition is critical: %s	2		
1054	2	FaCEvRTDataServInit	Invalid response %s for command %s prerequisite check override (expected CANCEL or ALLOW).	2		
1055	2	FaCEvRTDataServInit	Received FUI response with seq. number %d for command with seq. number %d.	4		
1056	2	FaCEvRTDataServInit	This partition %s has not been uplinked prior to the current partition %s	2		
1057	2	FaCEvRTDataServInit	This load/partition %s was already uplinked .	2		
1058	2	FaCEvRTDataServInit	Fop protocol is successfully initialized with a Set Vr command, current expecting sequence number is %d.	1		
1059	2	FaCEvRTDataServInit	Fop protocol initialization with Set Vr failed, due to %s.	3		
1060	2	FaCEvRTDataServInit	FOP protocol state changed form %s to %s.	1		
1061	2	FaCEvRTDataServInit	Protocol warning : %s	2		
1062	2	FaCEvRTDataServInit	Protocol Info : %s	1		
1063	2	FaCEvRTDataServInit	CLCW archive file: %s open %s.	1		
1064	2	FaCEvRTDataServInit	Command transmit process exiting normally	1		
1065	2	FaCEvRTDataServInit	Command transmit process could not find the parameter server, exiting	4		
1066	2	FaCEvRTDataServInit	Command transmit process could not find the parameter server end point, exiting	4		
1067	2	FaCEvRTDataServInit	Command transmit process: error opening CDB log file %s	4		
1068	2	FaCEvRTDataServInit	Command transmit process: error writing to CDB log file %s	4		
1069	2	FaCEvRTDataServInit	Command transmit process exiting on failure	4		
1070	2	FaCEvRTDataServInit	Command transmit process could not register with the name server, exiting	4		
1071	2	FaCEvRTDataServInit	Command transmit process could not find an Edos port and address in services file	4		
1072	2	FaCEvRTDataServInit	Command transmit process: Normal Shutdown	1		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
1074	2	FaCEvRTDataServInit	Command %s prerequisite check failure: Parameter %i has a static flag = %i.	2		
1075	2	FaCEvRTDataServInit	Sending prerequisite check override request for command %s.	1		
1076	2	FaCEvRTDataServInit	Critical command %s was CANCELED.	1		
1077	2	FaCEvRTDataServInit	Command %s prerequisite check failure: Parameter %i = %d is OUT OF RANGE (min, max) = (%d, %d).	2		
1078	2	FaCEvRTDataServInit	The user entered value %d for command %s submnemonic %s is OUT OF RANGE (min, max) = (%d, %d).	2		
1079	2	FaCEvRTDataServInit	The user entered submnemonic %s for command %s was not found in the Format Command Controller database.	2		
1080	2	FaCEvRTDataServInit	Command mnemonic %s submnemonic %s has no default value.	1		
1081	2	FaCEvRTDataServInit	SCID %s, mode %s, transmitting to port %d, address %s	1		
1082	2	FaCEvRTDataServInit	Command %s prerequisite check failure: Telemetry PID = %i was not found in the command definition.	2		
1083	2	FaCEvRTDataServInit	Command %s timed out -- verification failure.	2		
1084	2	FaCEvRTDataServInit	Invalid response for critical %s command. Received %s -- expected ALLOW or CANCEL.	2		
1085	2	FaCEvRTDataServInit	Found and aborted HAZARDOUS command: %s	3		
1086	2	FaCEvRTDataServInit	Load %s was ABORTED -- transmission stopped.	3		
1087	2	FaCEvRTDataServInit	Command %s execution was verified with telemetry PID %i = %d.	1		
2000	3	FaCEvRTDataServInit	Schedule Controller Processing %s #%i.	1		
2001	3	FaCEvRTDataServInit	Error in expanding %s #%i	3		
2002	3	FaCEvRTDataServInit	Complete SUCCESSFUL processing of %s #%i.	1		
2003	3	FaCEvRTDataServInit	%s is halting processing. Error in constraint check for %s #%i	3		
2004	3	FaCEvRTDataServInit	Cannot Delete DAS #%i, it hasn't been previously processed.	3		
2005	3	FaCEvRTDataServInit	Cannot Delete DAS #%i, load has already been uplinked	3		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
2006	3	FaCEvRTDataServInit	Cannot process late change %i, a matching DAS has not been previously processed	3		
2007	3	FaCEvRTDataServInit	Ceasing processing of DAS #%-i, user terminated.	2		
2011	3	FaCEvRTDataServInit	Load Catalog %s load generation failed for %s	3		
2012	3	FaCEvRTDataServInit	Error building the Load for DAS #%-d	2		
2013	3	FaCEvRTDataServInit	Ground Schedule processing ground script request for string %-d for %s to %s.	1		
2014	3	FaCEvRTDataServInit	Ground Schedule successfully created ground script for string %-d for %s to %s.	1		
2015	3	FaCEvRTDataServInit	Ground Schedule failed to create ground script for string %-d for %s to %s.	2		
2016	3	FaCEvRTDataServInit	Ground Schedule processing delete request for %-i	1		
2018	3	FaCEvRTDataServInit	Ground Schedule processing constraint check list request starting %s	1		
2019	3	FaCEvRTDataServInit	Ground Schedule processing uplink schedule	1		
2020	3	FaCEvRTDataServInit	Ground Script request skipped directives between %s and %s for string %-d.	2		
2021	3	FaCEvRTDataServInit	Load Catalog: Load file generation error for %s	3		
2022	3	FaCEvRTDataServInit	%s Load, %s, being generated with soft constraint violations	2		
2023	3	FaCEvRTDataServInit	Load Catalog %s load generation started for %s	1		
2024	3	FaCEvRTDataServInit	Load Catalog %s load generation completed for %s.	1		
2025	3	FaCEvRTDataServInit	Unable to delete predicted model for %s.	2		
2026	3	FaCEvRTDataServInit	%s starting with historical data %s : %s	1		
2027	3	FaCEvRTDataServInit	%s starting with out historical data %s : %s	1		
2028	3	FaCEvRTDataServInit	Compare of image, %s, with image, %s, finished with %-d miss compares.	1		
2029	3	FaCEvRTDataServInit	Compare of image, %s, with image, %s, starting.	1		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
2030	3	FaCEvRTDataServInit	Ground Schedule processing DAS %i version %i	1		
2031	3	FaCEvRTDataServInit	Memory Image Process starting with no historical data.	1		
2032	3	FaCEvRTDataServInit	Memory Image Process started using historical data.	1		
2033	3	FaCEvRTDataServInit	Ground Schedule may need to be recreated from %s to %s.	3		
2034	3	FaCEvRTDataServInit	Load '%s' not deleted. %s	3		
2035	3	FaCEvRTDataServInit	Load, %s, deleted from catalog	1		
2036	3	FaCEvRTDataServInit	Load, %s, previously uplinked, delete request denied	1		
2037	3	FaCEvRTDataServInit	Unable to submit load catalog entry for %s	2		
2038	3	FaCEvRTDataServInit	%s dump file not successfully processed by Memory Image server.	3		
2039	3	FaCEvRTDataServInit	Memory Image Server could not generate a report for %s image.	3		
2040	3	FaCEvRTDataServInit	The Ground Reference Image was not updated with load %s.	3		
2041	3	FaCEvRTDataServInit	%s dump completed %s	1	Null	FmlmMemoryImage
2042	3	FaCEvRTDataServInit	Dump file %s not processed by Memory Image Server. Invalid file type specified.	3		
2043	3	FaCEvRTDataServInit	Ground Reference Image created from load %s.	1		
2044	3	FaCEvRTDataServInit	Memory Image process has created an empty ATC ground reference image.	1		
2045	3	FaCEvRTDataServInit	Expanding Activities without expanding RTCS Buffer Contents.	2		
2046	3	FaCEvRTDataServInit	Memory Image process could not read binary from file %s. Dump processing not completed.	3		
2047	3	FaCEvRTDataServInit	RTS Command mnemonics not found in Command ODF: %s, load generation failed.	3		
2048	3	FaCEvRTDataServInit	Processing Load Generation Request for %s	1		
2049	3	FaCEvRTDataServInit	Processing Load Delete Req for %s	1		
2050	3	FaCEvRTDataServInit	Load Catalog unable to update database with info: Load %s uplinked at %f.	3		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
2051	3	FaCEvRTDataServInit	%s received and refused a non-ATC constraint check request.	3		
2052	3	FaCEvRTDataServInit	%s constraint checking %s number %d.	1		
2053	3	FaCEvRTDataServInit	%s constraint checked %s number %d with no conflict (Success).	1		
2054	3	FaCEvRTDataServInit	%s constraint checked %s number %d with %d soft constraints (Pending).	2		
2055	3	FaCEvRTDataServInit	%s constraint checked %s number %d with %d soft constraints and %d hard constraints (Failed).	3		
2056	3	FaCEvRTDataServInit	DAS %d not deleted from the Load Catalog.	3		
2057	3	FaCEvRTDataServInit	%s status Success : %s	1		
2058	3	FaCEvRTDataServInit	%s status Pending : %s	2		
2059	3	FaCEvRTDataServInit	%s status Failed : %s	2		
2060	3	FaCEvRTDataServInit	%s status Unknown : %s	3		
2061	3	FaCEvRTDataServInit	%s generated Null status.	3		
2062	3	FaCEvRTDataServInit	Load Catalog deleting ATC loads with DAS id %d.	1		
2063	3	FaCEvRTDataServInit	Load Catalog error opening load contents file %s.	3		
2064	3	FaCEvRTDataServInit	DAS #%i contains zero ATC commands. No Load Generated.	2		
2065	3	FaCEvRTDataServInit	%s failed to create a buffer for %s, this load may need to be regenerated	3		
2066	3	FaCEvRTDataServInit	%s received an improperly formatted event.	3		
2067	3	FaCEvRTDataServInit	%s may contain invalid data. The process may need to be updated.	3		
2068	3	FaCEvRTDataServInit	%s %s violated for %s	2		
2069	3	FaCEvRTDataServInit	%s	2		
2070	3	FaCEvRTDataServInit	No buffer with the load name %s found. Cannot delete.	3		
2071	3	FaCEvRTDataServInit	ATC Buffer Report Generation Failed.	3		
2072	3	FaCEvRTDataServInit	No historical ground image available for %s in process %s.	2		
2077	3	FaCEvRTDataServInit	%s constraint client failed to connect to server : %s.	4		
2078	3	FaCEvRTDataServInit	%s constraint client could not find command line option %s for client id.	3		
2079	3	FaCEvRTDataServInit	%s constraint client could not find command line option %s for client's server's portal number.	3		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
2080	3	FaCEvRTDataServInit	%s constraint client could not find command line option %s for client's server's host. Assuming client			
2081	3	FaCEvRTDataServInit	%s lost connection with server : %s.	4		
2082	3	FaCEvRTDataServInit	Tried to spawn %s and failed. %s	2		
2083	3	FaCEvRTDataServInit	Load Catalog deleted %d loads from the database.	1		
2084	3	FaCEvRTDataServInit	Unknown service request received by %s.	2		
2085	3	FaCEvRTDataServInit	: %s encountered error communicating with client %s	2		
2087	3	FaCEvRTDataServInit	Received message to begin %s database validation constraint checking.	1		
2088	3	FaCEvRTDataServInit	Finished processing %s database validation constraint checking. Report Filename : %s	1		
2089	3	FaCEvRTDataServInit	Received message to change database validation version to %s.	1		
2091	3	FaCEvRTDataServInit	Finished constraint checking %s, %s.	1		
2092	3	FaCEvRTDataServInit	Started constraint checking %s, %s.	1		
2093	3	FaCEvRTDataServInit	Could not interface with database %s on server %s.	2		
2094	3	FaCEvRTDataServInit	%s informing %i Definition Constraint Check Server(s) of validation start on database version %s.	1		
2095	3	FaCEvRTDataServInit	%s: Error in request from client. %s	3		
2096	3	FaCEvRTDataServInit	Ground Schedule could not create an expected state for %t.	3		
2097	3	FaCEvRTDataServInit	Unable to open %s buffer file %s. Cannot save state.	3		
2098	3	FaCEvRTDataServInit	CMS received a load uplink event with the illegal load name %s	3		
2099	3	FaCEvRTDataServInit	Start Address segment incremented to %d for load '%s'.	1		
2100	3	FaCEvRTDataServInit	%s error reading configuration file '%s' in directory '%s'. %s	3		
2101	3	FaCEvRTDataServInit	%s failed to promote load %s to actual.	3		
2102	3	FaCEvRTDataServInit	%s failed to delete load %s.	3		
2103	3	FaCEvRTDataServInit	%s failed to locate the buffer file for load %s.	3		
2104	3	FaCEvRTDataServInit	Ground Script for string %d may contain invalid data from %t.	2		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
2105	3	FaCEvRTDataServInit	Failed to map ATC commands into ATC buffer model : %s	3		
2106	3	FaCEvRTDataServInit	Failed to expand safe activity '%s'.	3		
2107	3	FaCEvRTDataServInit	Error found while expanding activity '%s'.	3		
2108	3	FaCEvRTDataServInit	Error : Activity %s : %s	3		
2109	3	FaCEvRTDataServInit	%s : Error while performing select on database table '%s'.	4		
2110	3	FaCEvRTDataServInit	%s : No Activity expander.	4		
2111	3	FaCEvRTDataServInit	Load initiate command %s max load size %i has been exceeded by command load %s of load size %i. Load Generation continuing.	2		
2112	3	FaCEvRTDataServInit	Expected %s parameter as %s parameter on event id %i not found. %s	3		
2113	3	FaCEvRTDataServInit	Unknown %s mnemonic '%s' in %s request.	3		
2114	3	FaCEvRTDataServInit	Could not locate sub-mnemonic '%s' for dump command '%s' for dump '%s'.	3		
2115	3	FaCEvRTDataServInit	Could not locate dump file %s. Can not process dump.	3		
2116	3	FaCEvRTDataServInit	Could not convert dump file %s. %s	3		
2117	3	FaCEvRTDataServInit	%s could not open directory : %s %s	2		
2118	3	FaCEvRTDataServInit	%s could not status file : %s %s	2		
2119	3	FaCEvRTDataServInit	Error sending analysis subsystem activity log dump %s. %s	3		
2120	3	FaCEvRTDataServInit	Load Catalog process not found. Failure to update Load Catalog.	2		
2121	3	FaCEvRTDataServInit	Contents of dump %s SUSPECT.	3		
2122	3	FaCEvRTDataServInit	Load Catalog failed to locate ATC loads with DAS id %d in the database.	3		
2123	3	FaCEvRTDataServInit	%s found %i entries in database table %s for %s '%s'. Expected %i entries.	4		
2124	3	FaCEvRTDataServInit	Load '%s' not found in Load Catalog Database. %s	3		
2125	3	FaCEvRTDataServInit	Could not inform PAS of load '%s' delete. Scheduled uplinks will not be deleted.	2		
2126	3	FaCEvRTDataServInit	Successfully updated %s with load <%s>	1		
2127	3	FaCEvRTDataServInit	Successfully updated Image Model with load <%s>.	1		
2128	3	FaCEvRTDataServInit	Could not locate file for image %s. %s.	2		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
3001	4	FaCEvRTDataServInit	%s exiting normally	1		
3002	4	FaCEvRTDataServInit	%s exiting on failure	4		
3004	4	FaCEvRTDataServInit	Invalid # of command line arguments for %s	4		
3005	4	FaCEvRTDataServInit	%s detected packet sequence gap; Expected: #%-d, Received: #%-d	2		
3006	4	FaCEvRTDataServInit	%s detected data dropout	2		
3007	4	FaCEvRTDataServInit	Main: Caught an unidentified exception during polling %s.	2		
3008	4	FaCEvRTDataServInit	Main: Caught an unidentified exception during polling.	2		
3009	4	FaCEvRTDataServInit	Server couldn't find Sybase repository.	2		
3010	4	FaCEvRTDataServInit	Bad pointer received in Retrieve File.	2		
3011	4	FaCEvRTDataServInit	Bad pointer received in Store File	2		
3012	4	FaCEvRTDataServInit	Bad pointer received in Get File Info.	2		
3013	4	FaCEvRTDataServInit	Unknown reply received from sender	2		
3014	4	FaCEvRTDataServInit	No reply received from server	2		
3015	4	FaCEvRTDataServInit	Connected to Database	2		
3016	4	FaCEvRTDataServInit	Initializing Load Catalog Server	1		
3017	4	FaCEvRTDataServInit	%s: Internal error occurred	4		
3018	4	FaCEvRTDataServInit	%s: External error occurred	4		
3019	4	FaCEvRTDataServInit	%s: Name Server registration failed	4		
3020	4	FaCEvRTDataServInit	%s: Database connection failed	4		
3021	4	FaCEvRTDataServInit	%s: Database table access failed	4		
3022	4	FaCEvRTDataServInit	%s: Unidentified error occurred	4		
3023	4	FaCEvRTDataServInit	%s detected communication error: %s	3		
3024	4	FaCEvRTDataServInit	%s: Analysis request, ID #%-d, complete	1		
3025	4	FaCEvRTDataServInit	%s could not find %s in NameServer	2		
3026	4	FaCEvRTDataServInit	Table Definition Server initialized.	1		
3027	4	FaCEvRTDataServInit	%s	1		
3028	4	FaCEvRTDataServInit	%s	2		
3029	4	FaCEvRTDataServInit	%s	3		
3030	4	FaCEvRTDataServInit	%s	4		
3031	4	FaCEvRTDataServInit	%s detected duplicate packet: %-d. Packet ignored.	2		
3032	4	FaCEvRTDataServInit	%s unable to create coupler on initialization	4		
3033	4	FaCEvRTDataServInit	%s: Analysis request, ID #%-d, completed with errors	2		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
3034	4	FaCEvRTDataServInit	EventRouter failed to route event %d to %s process.	2		
3035	4	FaCEvRTDataServInit	NameServer returned an empty end point update buffer for process %s	3		
3036	4	FaCEvRTDataServInit	Process %s caught the following exception %s	3		
3037	4	FaCEvRTDataServInit	Can't connect to %s Sybase Table	3		
3038	4	FaCEvRTDataServInit	Can't send file %s to Long Term Archive	2		
3039	4	FaCEvRTDataServInit	File %s is not local, but database indicates the file is local	2		
3040	4	FaCEvRTDataServInit	Could not delete events from FOS Event Archive	2		
3041	4	FaCEvRTDataServInit	Invalid Action Type received by Long Term Process	2		
3042	4	FaCEvRTDataServInit	File Watcher detected external file %s in directory %s	1		
3043	4	FaCEvRTDataServInit	Successfully generated table load for table name <%s> id <%d>.	1		
3044	4	FaCEvRTDataServInit	Failed to generate table load for table <%s> id <%d>. Reason: %s.	3		
3045	4	FaCEvRTDataServInit	%s received from host %s time %s	1		
3046	4	FaCEvRTDataServInit	%s received from host %s time %s	2		
3047	4	FaCEvRTDataServInit	%s received from host %s time %s	3		
3048	4	FaCEvRTDataServInit	%s received from host %s time %s	4		
3049	4	FaCEvRTDataServInit	Unknown mode for %s	4		
3050	4	FaCEvRTDataServInit	%s was sent with no data	3		
3051	4	FaCEvRTDataServInit	Wrong size %s was sent	2		
3052	4	FaCEvRTDataServInit	Invalid EDOS Event Message Type sent by %s	4		
4000	5	FaCEvRTDataServInit	Unable to open %s file: %s	4		
4001	5	FaCEvRTDataServInit	%s File is empty	1		
4002	5	FaCEvRTDataServInit	Unable to find %s endpoint from Nameserver	4		
4004	5	FaCEvRTDataServInit	%s lost proxy connection to %s	4		
4005	5	FaCEvRTDataServInit	Room Builder process started.	2		
4006	5	FaCEvRTDataServInit	Room Builder process cancelled.	2		
4007	5	FaCEvRTDataServInit	Room saved by Room Builder.	2		
4008	5	FaCEvRTDataServInit	Room Builder process ended.	2		
4009	5	FaCEvRTDataServInit	Sending %s to parser.	1		
4010	5	FaCEvRTDataServInit	Procedure Controller Starting procedure %s	1		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
4011	5	FaCEvRTDataServInit	Procedure Controller Finished processing procedure %s	1		
4012	5	FaCEvRTDataServInit	Time entered is earlier than current time, procedure %s will start at %s	1		
4013	5	FaCEvRTDataServInit	Changing MODE to %s	1		
4014	5	FaCEvRTDataServInit	Procedure %s WAITING indefinitely	1		
4015	5	FaCEvRTDataServInit	Procedure %s WAITING %s seconds	1		
4016	5	FaCEvRTDataServInit	Procedure %s is waiting until TIME %s to start	1		
4018	5	FaCEvRTDataServInit	Procedure Control Window Started	1		
4019	5	FaCEvRTDataServInit	Procedure Control Window Stopped	1		
4020	5	FaCEvRTDataServInit	%s	1		
4021	5	FaCEvRTDataServInit	The file %s does %s in the %s directory.	1		
4022	5	FaCEvRTDataServInit	ReplayController has been started	1		
4023	5	FaCEvRTDataServInit	Replay Controller exited	1		
4025	5	FaCEvRTDataServInit	ReplayController can not locate: %s	4		
4026	5	FaCEvRTDataServInit	Command Request Handler Started	1		
4027	5	FaCEvRTDataServInit	Command Request Handler Stopped	1		
4028	5	FaCEvRTDataServInit	Command Request Window Started	1		
4029	5	FaCEvRTDataServInit	Command Request Window Stopped	1		
4030	5	FaCEvRTDataServInit	Cmd Req Win: Error opening %s	2		
4032	5	FaCEvRTDataServInit	User %s logged in to %s	1		
4033	5	FaCEvRTDataServInit	%s can not find NameServer	4		
4034	5	FaCEvRTDataServInit	ReplayController found error in file: %s	1		
4035	5	FaCEvRTDataServInit	Environment Controller has started successfully on host %s.	1		
4036	5	FaCEvRTDataServInit	Environment Controller is shutting down on host %s due to signal failure.	2		
4038	5	FaCEvRTDataServInit	Environment Controller is shutting down on host %s.	1		
4039	5	FaCEvRTDataServInit	From: %s To: %s Text: %s	1		
4040	5	FaCEvRTDataServInit	From: %s To: %s Text: %s	2		
4041	5	FaCEvRTDataServInit	From: %s To: %s Text: %s	3		
4042	5	FaCEvRTDataServInit	From: %s To: %s Text: %s	4		
4043	5	FaCEvRTDataServInit	ATC Buffer Display has been started	1		
4044	5	FaCEvRTDataServInit	ATC Buffer Display exited	1		
4045	5	FaCEvRTDataServInit	ATC Buffer Display can not locate: %s	1		
4046	5	FaCEvRTDataServInit	ATC Buffer Display can not get data from CMS	4		
4047	5	FaCEvRTDataServInit	Quick Message Generator Started	1		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
4048	5	FaCEvRTDataServInit	Quick Message Generator exited	1		
4049	5	FaCEvRTDataServInit	Binary Load Builder Started	1		
4050	5	FaCEvRTDataServInit	Binary Load Builder Closed	1		
4051	5	FaCEvRTDataServInit	Config file setup failed	4		
4052	5	FaCEvRTDataServInit	Ground Script Display Window started	1		
4053	5	FaCEvRTDataServInit	Ground Script Display Window exited	1		
5001	6	FaCEvRTDataServInit	user %s, %s started successfully	1		
5003	6	FaCEvRTDataServInit	user %s, %s completed successfully	1		
5004	6	FaCEvRTDataServInit	user %s, %s was terminated by signal %i	4		
5005	6	FaCEvRTDataServInit	user %s, %s: late change received; changes being applied to what-if plan %s	2		
5006	6	FaCEvRTDataServInit	user %s, %s received job %s %i for time range %s to %s	1		
5007	6	FaCEvRTDataServInit	user %s, %s sent job type %s with ID %i to the Schedule Controller	1		
5008	6	FaCEvRTDataServInit	user %s, %s: job type %s with ID %i status changed to %s	1		
5009	6	FaCEvRTDataServInit	user %s, %s is unable to connect to Schedule Controller	1		
5010	6	FaCEvRTDataServInit	user %s, %s locked plan %s at %s	1		
5011	6	FaCEvRTDataServInit	user %s, %s locked resource %s at %s	1		
5015	6	FaCEvRTDataServInit	user %s, %s: plan %s saved as plan %s	1		
5016	6	FaCEvRTDataServInit	user %s, %s: saving plan %s	1		
5017	6	FaCEvRTDataServInit	user %s, %s: receiving message that plan %s has been saved	1		
5018	6	FaCEvRTDataServInit	user %s, %s: attempting to merge plan %s	1		
5019	6	FaCEvRTDataServInit	user %s, %s: plan %s opened from %s to %s	1		
5020	6	FaCEvRTDataServInit	user %s, %s: plan %s closed	1		
5021	6	FaCEvRTDataServInit	user %s, %s: new plan %s created	1		
5024	6	FaCEvRTDataServInit	user %s, %s: scheduled activity %s locked on plan %s from %s to %s	1		
5025	6	FaCEvRTDataServInit	user %s, %s: scheduled activity %s unlocked on plan %s from %s to %s	1		
5026	6	FaCEvRTDataServInit	user %s, %s: annotation added/changed for scheduled activity %s on plan %s from %s to %s	1		
5027	6	FaCEvRTDataServInit	user %s, %s: permission added to plan %s for resource %s to user %s	1		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
5028	6	FaCEvRTDataServInit	user %s, %s: permission removed from plan %s for resource %s for users %s	1		
5030	6	FaCEvRTDataServInit	user %s, %s: new BAP %s created	1		
5031	6	FaCEvRTDataServInit	user %s, %s: BAP %s deleted	1		
5032	6	FaCEvRTDataServInit	user %s, %s: BAP %s modified	1		
5033	6	FaCEvRTDataServInit	user %s, %s: new constraint %s added	1		
5034	6	FaCEvRTDataServInit	user %s, %s: constraint %s deleted	1		
5035	6	FaCEvRTDataServInit	user %s, %s: constraint %s changed	1		
5036	6	FaCEvRTDataServInit	user %s, %s: request to unschedule all scheduled activities on plan %s from %s to %s on resource %s	1		
5037	6	FaCEvRTDataServInit	user %s, %s: unscheduled activity %s on plan %s from %s to %s	1		
5038	6	FaCEvRTDataServInit	user %s, %s: deleted unscheduled activity %s which used to be scheduled on plan %s from %s to %s from the system	1		
5039	6	FaCEvRTDataServInit	user %s, %s: failed to reschedule activity(s) onto plan %s	2		
5040	6	FaCEvRTDataServInit	user %s, %s: playback activities being reset on plan %s for SSR %s from %s to %s	1		
5041	6	FaCEvRTDataServInit	user %s, %s: activity %s not scheduled on plan %s from %s to %s because it overlaps an already scheduled activity on reso	2		
5042	6	FaCEvRTDataServInit	user %s, %s: activity %s not scheduled on plan %s from %s to %s because two mode transitions would occur simultaneously o	2		
5043	6	FaCEvRTDataServInit	user %s, %s: user %s does not have permission on resource %s from %s to %s on plan %s	2		
5044	6	FaCEvRTDataServInit	user %s, %s: another user currently has access to resource %s from %s to %s on plan %s	2		
5045	6	FaCEvRTDataServInit	user %s, %s: activity %s failed to be scheduled on plan %s from %s to %s because resource %s is locked	2		
5046	6	FaCEvRTDataServInit	user %s, %s: activity %s failed to be scheduled on resource %s since it is outside of plan %s's open time range	2		
5047	6	FaCEvRTDataServInit	user %s, %s: scheduled activity %s on resource %s on plan %s from %s to %s	1		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
5048	6	FaCEvRTDataServInit	user %s, %s: user %s gained access to resource %s on plan %s from %s to %s	1		
5049	6	FaCEvRTDataServInit	user %s, %s: access freed from plan %s on resource %s from %s to %s	1		
5050	6	FaCEvRTDataServInit	user %s, %s: activity %s failed to be unscheduled on plan %s from %s to %s since user with role %s does not have permissi	2		
5052	6	FaCEvRTDataServInit	user %s, %s: activity %s failed to be unscheduled on resource %s since it is outside plan %s's open time range	2		
5053	6	FaCEvRTDataServInit	user %s, %s: activity %s unscheduled from resource %s on plan %s from %s to %s	1		
5054	6	FaCEvRTDataServInit	user %s, %s: activity %s not unscheduled on plan %s from %s to %s because resource %s is locked	2		
5055	6	FaCEvRTDataServInit	user %s, %s: plan %s saved as plan %s failed	2		
5056	6	FaCEvRTDataServInit	user %s, %s: saving plan %s failed	2		
5057	6	FaCEvRTDataServInit	user %s, %s: merge of plan %s failed	2		
5058	6	FaCEvRTDataServInit	user %s, %s: opening plan %s from %s to %s failed	2		
5059	6	FaCEvRTDataServInit	user %s, %s: closing plan %s failed	2		
5060	6	FaCEvRTDataServInit	user %s, %s: creation of new plan %s failed	2		
5061	6	FaCEvRTDataServInit	user %s, %s: unable to lock scheduled activity %s on plan %s from %s to %s	2		
5062	6	FaCEvRTDataServInit	user %s, %s: unable to unlock scheduled activity %s on plan %s from %s to %s	2		
5063	6	FaCEvRTDataServInit	user %s, %s: unable to add/change annotation of scheduled activity %s on plan %s from %s to %s	2		
5064	6	FaCEvRTDataServInit	user %s, %s: failed to add permission to plan %s for resource %s for users %s	2		
5065	6	FaCEvRTDataServInit	user %s, %s: failed to remove permission from plan %s for resource %s for users %s	2		
5066	6	FaCEvRTDataServInit	user %s, %s failed to lock plan %s at %s	2		
5067	6	FaCEvRTDataServInit	user %s, %s locked resource %s at %s	2		
5068	6	FaCEvRTDataServInit	user %s, %s: new activity %s created	1		
5069	6	FaCEvRTDataServInit	user %s, %s: failed to create new activity	2		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
5070	6	FaCEvRTDataServInit	user %s, %s: activity %s deleted	1		
5071	6	FaCEvRTDataServInit	user %s, %s: failed to delete activity	2		
5072	6	FaCEvRTDataServInit	user %s, %s: activity %s modified	1		
5073	6	FaCEvRTDataServInit	user %s, %s: failed to modify activity	2		
5074	6	FaCEvRTDataServInit	user %s, %s: failed to create new BAP	2		
5075	6	FaCEvRTDataServInit	user %s, %s: failed to delete BAP	2		
5076	6	FaCEvRTDataServInit	user %s, %s: failed to modify BAP	2		
5077	6	FaCEvRTDataServInit	user %s, %s: failed to create new constraint	2		
5078	6	FaCEvRTDataServInit	user %s, %s: failed to delete constraint	2		
5079	6	FaCEvRTDataServInit	user %s, %s: failed to modify constraint	2		
5080	6	FaCEvRTDataServInit	user %s, %s: failed to unschedule activity %s on plan %s from %s to %s	2		
5081	6	FaCEvRTDataServInit	user %s, %s: Could not find activity definition %s	2		
5082	6	FaCEvRTDataServInit	user %s, %s: Could not find the scheduled activity (allocation) %s	2		
5083	6	FaCEvRTDataServInit	user %s, %s: Could not find the resource %s	2		
5084	6	FaCEvRTDataServInit	user %s, %s: Could not find the BAP %s	2		
5085	6	FaCEvRTDataServInit	user %s, %s: Could not find the constraint %s	2		
5086	6	FaCEvRTDataServInit	user %s, %s: Could not find the plan %s	2		
5087	6	FaCEvRTDataServInit	user %s, %s: Could not find the state	2		
5088	6	FaCEvRTDataServInit	user %s, %s: outage added to resource %s from %s to %s on plan %s	1		
5089	6	FaCEvRTDataServInit	user %s, %s: failed to place an outage on resource	2		
5090	6	FaCEvRTDataServInit	user %s, %s: plan %s saved to %s	1		
5091	6	FaCEvRTDataServInit	user %s, %s: plan %s deleted	1		
5092	6	FaCEvRTDataServInit	user %s, %s: failed to delete plan %s	2		
5093	6	FaCEvRTDataServInit	user %s, %s: activity %s saved to %s	1		
5094	6	FaCEvRTDataServInit	user %s, %s: failed to save activity %s to %s	2		
5095	6	FaCEvRTDataServInit	user %s, %s: activity %s removed from %s	1		
5096	6	FaCEvRTDataServInit	user %s, %s: failed to remove activity %s from %s	2		
5097	6	FaCEvRTDataServInit	user %s, %s: BAP %s saved to %s	1		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
5098	6	FaCEvRTDataServInit	user %s, %s: BAP %s failed to be saved to %s	2		
5099	6	FaCEvRTDataServInit	user %s, %s: BAP %s removed from %s	1		
5100	6	FaCEvRTDataServInit	user %s, %s: failed to remove BAP %s from %s	2		
5101	6	FaCEvRTDataServInit	user %s, %s: constraint %s saved to %s	1		
5102	6	FaCEvRTDataServInit	user %s, %s: failed to save constraint %s to %s	2		
5103	6	FaCEvRTDataServInit	user %s, %s: constraint %s removed from %s	1		
5104	6	FaCEvRTDataServInit	user %s, %s: failed to remove constraint %s from %s	2		
5105	6	FaCEvRTDataServInit	user %s, %s: permission saved to %s	1		
5106	6	FaCEvRTDataServInit	user %s, %s: failed to save permission to %s	2		
5107	6	FaCEvRTDataServInit	user %s, %s: lock time saved to %s	1		
5108	6	FaCEvRTDataServInit	user %s, %s: failed to save lock time to %s	2		
5109	6	FaCEvRTDataServInit	user %s, %s: access saved to %s	1		
5110	6	FaCEvRTDataServInit	user %s, %s: failed to save access to database	2		
5111	6	FaCEvRTDataServInit	user %s, %s: access removed from database	1		
5112	6	FaCEvRTDataServInit	user %s, %s: failed to remove access from database	2		
5113	6	FaCEvRTDataServInit	user %s, %s: failed to save resource lock time to %s	2		
5114	6	FaCEvRTDataServInit	user %s, %s: resource lock time saved to %s	1		
5115	6	FaCEvRTDataServInit	user %s, %s: failed to save plan %s to %s	2		
5116	6	FaCEvRTDataServInit	user %s, %s: plan %s removed from %s	2		
5117	6	FaCEvRTDataServInit	user %s, %s: failed to remove plan %s from %s	2		
5118	6	FaCEvRTDataServInit	user %s, %s: failed to load accesses from %s	2		
5119	6	FaCEvRTDataServInit	user %s, %s: failed to load scheduled activities (allocations) from %s	2		
5120	6	FaCEvRTDataServInit	user %s, %s: failed to load states from %s	2		
5121	6	FaCEvRTDataServInit	user %s, %s: failed to load activity pool from %s	2		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
5122	6	FaCEvRTDataServInit	user %s, %s: failed to load BAP pool from %s	2		
5123	6	FaCEvRTDataServInit	user %s, %s: failed to load commands from %s	2		
5124	6	FaCEvRTDataServInit	user %s, %s: failed to load constraint pool from %s	2		
5125	6	FaCEvRTDataServInit	user %s, %s: Failed to load %s from %s	2		
5126	6	FpCEvLoadEventTypesFailed	user %s, %s: failed to load event types from %s	2		
5127	6	FpCEvLoadHelpCtxtFailed	user %s, %s: failed to load help context from %s	2		
5128	6	FpCEvLoadModesFailed	user %s, %s: failed to load modes from %s	2		
5129	6	FpCEvLoadMsgTypesFailed	user %s, %s: failed to load message types from %s	2		
5130	6	FpCEvLoadPlanPoolFailed	user %s, %s: failed to load plan pool from %s	2		
5131	6	FpCEvLoadProceduresFailed	user %s, %s: failed to load procedures from %s	2		
5132	6	FpCEvLoadRoleFailed	user %s, %s: failed to load roles from %s	2		
5133	6	FpCEvLoadRsPoolFailed	user %s, %s: failed to load resource pool from %s	2		
5134	6	FpCEvLoadRsAssocFailed	user %s, %s: failed to load resource associations from %s	2		
5135	6	FpCEvLoadSchRsPoolFailed	user %s, %s: failed to load scheduling resource pool from %s	2		
5136	6	FpCEvLoadSchRsAssocFailed	user %s, %s: failed to load scheduling resource associations from %s	2		
5137	6	FpCEvRemoveAccessesFailed	user %s, %s: failed to remove accesses from %s	2		
5138	6	FpCEvSaveActPoolFailed	user %s, %s: failed to save activity pool into %s	2		
5139	6	FpCEvSaveAllocsFailed	user %s, %s: failed to save scheduled activities (allocations) into %s	2		
5140	6	FpCEvRemoveAllocsFailed	user %s, %s: failed to remove scheduled activities (allocations) for deleted plan %s from %s	2		
5141	6	FpCEvSaveBAPPoolFailed	user %s, %s: failed to save BAP pool into %s	2		
5142	6	FpCEvSaveConstrPoolFailed	user %s, %s: failed to save constraint pool into %s	2		
5143	6	FpCEvSaveCommandsFailed	user %s, %s: failed to save commands into %s	2		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
5144	6	FpCEvSaveEventsFailed	user %s, %s: failed to save events into %s	2		
5145	6	FpCEvSaveEventTypesFailed	user %s, %s: failed to save event types into %s	2		
5146	6	FpCEvSaveHelpCtxtFailed	user %s, %s: failed to save help context into %s	2		
5147	6	FpCEvSaveModesFailed	user %s, %s: failed to save modes into %s	2		
5148	6	FpCEvSaveMsgTypesFailed	user %s, %s: failed to save message types into %s	2		
5149	6	FpCEvSavePlanPoolFailed	user %s, %s: failed to save plan pool into %s	2		
5150	6	FpCEvSaveProceduresFailed	user %s, %s: failed to save procedures into %s	2		
5151	6	FpCEvSaveRoleFailed	user %s, %s: failed to save roles into %s	2		
5152	6	FpCEvSaveRsPoolFailed	user %s, %s: failed to save resource pool into %s	2		
5153	6	FpCEvSaveRsAssocFailed	user %s, %s: failed to save resource associations into %s	2		
5154	6	FpCEvSaveSchRsPoolFailed	user %s, %s: failed to save scheduling resource pool into %s	2		
5155	6	FpCEvSaveSchRsAssocFailed	user %s, %s: failed to save scheduling resource associations into %s	2		
5156	6	FpCEvLoadMsgTypeFailed	user %s, %s: failed to load message type %s from %s	2		
5157	6	FpCEvSavePlanLockFailed	user %s, %s: failed to lock plan pool using %s	2		
5158	6	FpCEvGetPlanLockFailed	user %s, %s: failed to get whether plan pool is locked using %s	2		
5159	6	FpCEvSaveStatesFailed	user %s, %s: failed to save states into %s	2		
5160	6	FpCEvRemoveStatesFailed	user %s, %s: failed to remove states for deleted plan %s from %s	2		
5161	6	FpCEvCantConnectToNs	user %s, %s is unable to connect to name server	2		
5162	6	FpCEvCantRegisterWithNs	user %s, %s is unable to register with the name server	2		
5163	6	FpCEvProcessAborted	user %s, %s aborted	2		
5164	6	FpCEvCantCreateEndPoint	user %s, %s unable to create end point	2		
5165	6	FpCEvUnknownRWMsg	user %s, %s: unknown Rogue Wave message	2		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
5166	6	FpCEvNoSResource	user %s, %s: Could not find the schedulable resource %s	2		
5167	6	FpCEvNotInheritedFrom	user %s, %s: %s not inherited from %s	2		
5168	6	FpCEvNotSpecified	user %s, %s: %s not specified or null	2		
5169	6	FpCEvNoEvent	user %s, %s: Could not find the event	2		
5170	6	FpCEvUnschedActivityLocked	user %s, %s: activity %s not unscheduled on plan %s from %s to %s because activity is locked	2		
5171	6	FpCEvNewViolation	user %s, %s: violation found: %s	2		
5172	6	FpCEvViolationRemoved	user %s, %s violation removed: %s	1		
5173	6	FpCEvKillAllocFailed	user %s, %s: failed to delete unscheduled activity %s which used to be scheduled on plan %s from %s to %s from the system	2		
5174	6	FpCEvDuplicateActivity	user %s, %s: Duplicate activity definition %s	2		
5175	6	FpCEvDuplicateBAP	user %s, %s: Duplicate BAP %s	2		
5176	6	FpCEvDuplicateConstraint	user %s, %s: Duplicate constraint %s	2		
5177	6	FpCEvDuplicatePlan	user %s, %s: Could not find the plan %s	2		
5178	6	FpCEvPlanSaveFailedPlanLocked	user %s, %s: Plan %s not saved because another user is saving. Try again.	2		
5179	6	FpCEvUplinkSuccess	user %s, %s: scheduling of load %s successful	1		
5180	6	FpCEvNotEnufContacts	user %s, %s: load %s not enough contacts for %d attempts	2		
5181	6	FpCEvNoContacts	user %s, %s: load %s not scheduled, no contacts found	3		
5182	6	FpCEvBadUplinkIntvl	user %s, %s: load %s not scheduled, invalid uplink interval, %s-%s	3		
5183	6	FpCEvBadUplinkAct	user %s, %s: load %s not scheduled, invalid uplink activity	3		
5184	6	FpCEvBadUplinkRes	user %s, %s: load %s not scheduled, invalid uplink resource	3		
5185	6	FpCEvUplinkNoUnschedule	user %s, %s: deleted load %s was not scheduled for uplink	1		
5186	6	FpCEvUnscheduleLoad	user %s, %s: Trying to unschedule uplink of deleted load %s	1		
5187	6	FpCEvNoDataRate	user %s, %s: No Data Rate in Uplink Activity %s	3		
5188	6	FpCEvDeleteCurrentJob	user %s, %s: Cannot delete current job from load queuer	3		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
5189	6	FpCEvConstraintResponse	user %s, %s: Soft Constraint for DAS %d %s	1		
5190	6	FpCEvASTERNotify	user %s, %s: %s Notifying ASTER of successful DAS %d	1		
5191	6	FpCEvLqCommError	user %s, %s: Communication Error - %s	3		
5192	6	FpCEvNotPresentInScript	user %s, %s: %s must be present in script. Flag: %s"	3		
5193	6	FpCEvInitFailed	user %s, %s: Initialization failed %s	2		
5194	6	FpCEvNotInitialize	user %s, %s: could not initialize %s, flag %s	2		
5195	6	FpCEvSetDefault	user %s, %s: setting values for %s to the default value	1		
5196	6	FpCEvInvalidValueInScript	user %s, %s: invalid value %s in script, flag: %s	2		
5197	6	FpCEvReadFail	user %s, %s: Failed to read %s	2		
5198	6	FpCEvUplinkFailure	user %s, %s: Failure requesting scheduling of uplink %s	3		
5199	6	FpCEvProcessSuccessful	user %s, %s: %s successful	1		
5200	6	FpCEvGetPlanVersionFailed	user %s, %s: failed to get version for plan %s from %s	2		
5201	6	FpCEvTDRSNotVisible	user %s, %s: Cannot schedule the contact; requested TDRS isn't visible over interval according to loaded FDD data.	2		
5202	6	FpCEvSlewOffPlan	user %s, %s: Cannot schedule the contact. Would require or alter an HGA slew beyond open plan. Open the plan for more time.	2		
5203	6	FpCEvSlewTooLong	user %s, %s: Cannot schedule the contact. The required HGA slew would last longer than the time available between contacts.	2		
5204	6	FpCEvNoResultsXfer	User %s, %s: No script to transfer results. File will be generated, but not transferred.	2		
5205	6	FpCEvNoLateChngXfer	User %s, %s: No script to transfer late change request. Request will be processed, but not transferred.	2		
5206	6	FpCEvLateChangeSent	User %s, %s: Late change request processed. Request file %s sent to EOC.	1		
5207	6	FpCEvLateChangeSentFail	User %s, %s: Attempt to send late change request file %s failed with status %i.	2		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
5208	6	FpCEvResultsSent	User %s, %s: Scheduling request processed. Results file %s sent.	1		
5209	6	FpCEvResultsSentFail	User %s, %s: Attempt to send results file %s failed with status %i.	2		
5210	6	FpCEvOpenTempFileFail	User %s, %s: Attempt to open file %s for output failed.	2		
5211	6	FpCEvBadActState	User %s, %s: INTERNAL ERROR: Found act state named %s with an invalid act id. contact FOT	2		
5212	6	FpCEvMissingAllocation	User %s, %s: INTERNAL ERROR: Could not find alloc for act state named %s. Contact FOT	2		
5213	6	FpCEvNonSimpleAct	User %s, %s: INTERNAL ERROR: act referenced by act state named %s is not a simple activity. ignoring.	2		
5214	6	FpCEvProcessingFile	User %s, %s: Processing file %s.	1		
5215	6	FpCEvProcessingDAS	User %s, %s: Processing DAS.	1		
5216	6	FpCEvNoFile	User %s, %s: No input file name given.	2		
5217	6	FpCEvFsUnrecognizedHeader	User %s, %s: Unable to process header for file %s, terminating.	4		
5219	6	FpCEvFsCantGenerateFilename	User %s, %s: Unable to generate output filename, terminating.	4		
5220	6	FpCEvMergedPlan	user %s, %s: successfully merged plan %s	1		
5221	6	FpCEvInvalidPlanName	User %s, %s: Creation of plan %s failed - ":" is not allowed in a plan name.	2		
5222	6	FpCEvNCCConnectionFailed	user %s,%s: NCC Connection Failed. %s	2		
5223	6	FpCEvNCCConnected	user %s,%s: Connected to the NCC.	2		
5224	6	FpCEvNCCNotConnected	user %s,%s: Not Connected to NCC. %s	2		
5225	6	FpCEvNCCTestMessage	user %s,%s:NCC Test Message %s	1		
5226	6	FpCEvNCCResendtMessage	user %s,%s: Resending Failed Message To NCC	2		
5227	6	FpCEvNCCBadMessage	user %s,%s:Bad message type received from NCC	2		
5228	6	FpCEvNCCScheduleUSMFailed	user %s,%s:Failed to update resource model with the User Schedule Message from the NCC.	2		
5229	6	FpCEvNCCScheduleSDNFailed	user %s,%s:Failed to update resource model with a Schedule Delete Notification from the NCC.	2		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
5230	6	FpCEvNCCScheduleSRMFailed	user %s,%s:Failed to update resource model with a Schedule Result Message from the NCC.	2		
5231	6	FpCEvNCCScheduleSRM	user %s,%s: %s %s	1		
5232	6	FpCEvNCCXDRConversionFailed	user %s,%s: Ncc message received - XDR conversion failed %s	1		
5233	6	FpCEvNCCSRRMessage	user %s,%s:NCC SRR message %s	1		
5234	6	FpCEvNCCSRRMessageFailed	user %s,%s:NCC SRR message %s	2		
5235	6	FpCEvNCCTestMessageFailed	user %s,%s:NCC Test Message %s	2		
6000	7	FgCEvReCfgState	%s re-configured to %s	1		
6001	7	FgCEvArchState	%s archive state is %s	1		
6002	7	FgCEvInvReCfgMsg	Invalid re-configuration message: %s	2		
6003	7	FgCEvUnknownIpcMsg	%s received unknown inter-process message	2		
6004	7	FgCEvSpawnFailure	Failed to spawn %s	4		
6005	7	FgCEvCommErr	Communication Error: %s ... %s	3		
6006	7	FgCEvNsUnregErr	Invalid %s: cannot unregister	3		
6007	7	FgCEvInitComp	%s initialization is completed.	1		
6008	7	FgCEvUnregNS	%s unregistered from the Name Server	1		
6009	7	FgCEvProcSpawnErr	%s failed to spawn %s process.	4		
6010	7	FgCEvExecFailed	Failed to execute %s process.	4		
6011	7	FgCEvUnknownRmsMsg	%s received unknown message from RMS.	2		
6012	7	FgCEvShutdown	%s is shutting down ...	3		
6013	7	FgCEvOnExit	%s is exiting normally.	1		
6014	7	FgCEvOnFailure	%s encountered a fatal error. Exiting ...	3		
6015	7	FgCEvRegNsFailed	%s failed to register to the Name Server.	4		
6016	7	FgCEvEndPtNotFound	%s end point not found in the Name Server.	4		
6017	7	FgCEvSysErr	System error: %s	3		
6018	7	FgCEvSpawnErr	%s is failed to execute	4		
6019	7	FgCEvGcmrSent	%s is sent to NCC GCMR (Reconfiguration) service.	1		
6020	7	FgCEvMsgNotFound	%s is not found in the ODB.	3		
6021	7	FgCEvReadOdfErr	%s failed to read ODF file : %s.	4		
6022	7	FgCEvGcmDispRcvd	GCM Disposition for %s is received; Status: %s	1		
6023	7	FgCEvGcmStExpected	GCM Disposition for %s is received, but a GCM Status message is expected.	2		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
6024	7	FgCEvGcmStRcvd	GCMR Status message for %s is received.	1		
6025	7	FgCEvStExpl	GCMR Status: Accept/Reject code = %d, explanation = %s.	1		
6026	7	FgCEvStErrParam	Accept/Reject explanation - %s, parameter in error: %d.	2		
6027	7	FgCEvGcmDispExpected	GCM Status for %s is received, but Disposition msg is expected.	2		
6028	7	FgCEvGcmrDenied	Request to send %s is denied. Reason: %s	2		
6029	7	FgCEvGcmrNotFound	%s is not found in the GCMR ODB.	2		
6030	7	FgCEvInvalidWks	%s is not a valid command WKS.	2		
6031	7	FgCEvInvalidUser	%s DOES NOT have command authority.	2		
6032	7	FgCEvInvMsgType	Invalid message type %s received from NCC.	2		
6033	7	FgCEvDataListEmpty	Directive rejected: Data item list in ECL directive for %s is empty	3		
6034	7	FgCEvDataNotFound	Directive rejected: Data item list for %s was not found in ODB.	3		
6035	7	FgCEvTimerErr	Timer error: %s	3		
6036	7	FgCEvInvNccSrvPtr	No IPC connection to NCC %s service, can not send message.	3		
6037	7	FgCEvInvSupiden	Invalid SUPIDEN %s in NCC message, stop processing this message.	3		
6038	7	FgCEvExtractMsgStErr	Can not extract current GCM message state from MsgLog.	2		
6039	7	FgCEvExtractAccRejErr	Can not extract Accept/Reject code from ODB.	2		
6040	7	FgCEvExtractErrParamErr	Can not extract error parameter address from ODB.	2		
6041	7	FgCEvUnknownNccMsg	Received unknown NCC %s message.	2		
6042	7	FgCEvMsgInfoNotFound	Message info for msgId %d is not found in MsgLog.	2		
6043	7	FgCEvInvArchProxy	Archiving Error: No IPC connection with archiver.	3		
6044	7	FgCEvCmdAuthChanged	Command Authority of %s changed to User: %s, WKS: %s.	1		
6045	7	FgCEvRcvdNccMsg	%s received %s from NCC.	1		
6046	7	FgCEvNoCommConnection	Communication is not established between %s and %s, try to reconnect.	2		
6047	7	FgCEvGcmrNotSend	%s is not sent to NCC.	2		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
6048	7	FgCEvOutOfSeq	EDOS CODA report message is out of sequence	2		
6049	7	FgCEvInvalidMsgType	The message received was not a CODA or Test CODA report	1		
6050	7	FgCEvInvalidDestinationId	Invalid CODA Report received (seq# %d): %d is an invalid Destination Id.	1		
6051	7	FgCEvInvalidSourceId	Invalid CODA report received (seq# %d): %d is an invalid Source ID.	1		
6052	7	FgCEvInvalidCODA	The CODA report received is invalid.	2		
6053	7	FgCEvUnknownNccUpdMsg	%s received unknown message from NCC UPD service	2		
6054	7	FgCEvUpdReceived	%s received UPD as request.	1		
6055	7	FgCEvUnexpectedUpd	%s received UPD but not requested.	2		
6056	7	FgCEvPerfDataRcvd	%s received %s from NCC Performance Data (92) service	1		
6057	7	FgCEvCtmReceived	%s received UPD Communication Test Message from NCC	1		
6058	7	FgCEvUnexpectedCtmRcvd	%s received unexpected UPD Communication Test			
6059	7	FgCEvBufferOutOfRange	CODA report seq# %d: Working buffer offset out of range.	2		
6060	7	FgCEvTimerExpired	EDOS has not sent a %s within the time-out limit.	2		
6061	7	FgCEvNoGcmrResp	Timer expired: No response from NCC GCMR (reconfiguration) Service for %s.	3		
6062	7	FgCEvChgState	%s on string %d changed state from %s to %s.	1		
6063	7	FgCEvChgStateErr	%s on string %d CAN NOT change state from %s to %s.	2		
6064	7	FgCEvInactiveState	%s on string %d is inactive.	2		
6065	7	FgCEvNoConnection	%s can not send message to %s, IPC connection is not established.	2		
6066	7	FgCEvCmdEchoRec	Command Echo Block Received from EDOS	1		
6067	7	FgCEvMsgToNcc	%s is sent to NCC %s.	1		
6068	7	FgCEvUpdReqNotSent	%s request failed to send to NCC %s.	2		
6069	7	FgCEvNccNoResponse	No response for %s from NCC %s Service.	2		
6070	7	FgCEvUnpackErr	%s encountered error while unpacking UPD message, reason: %s.	2		
6071	7	FgCEvUpdDropOut	String %d: UPD data drop out.	3		
6072	7	FgCEvNotOpsMode	%s on string %d is not in operational mode.	2		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
6073	7	FgCEvUpdDenied	Request to send %s is denied, reason: %s	2		
6074	7	FgCEvTSCommErr	%s> Communication Error: %s ... %s	3		
6075	7	FgCEvCodaError	Error in CODA Report (Seq# %d) - %s	2		
6076	7	FgCEvTsSRDenied	%s> Disconnection Request is denied %s	1		
6077	7	FgCEvTsMsgSent	%s> %s Msg sent to the test set.	1		
6078	7	FgCEvTsMsgFailedToBuild	%s> Failed to build %s Msg	1		
6081	7	FgCEvTsErrMsgRcvd	%s> Received Error Msg (ER) - Error Type: %s - %s	2		
6082	7	FgCEvTsUnknownMsgRcvd	%s> Received Unknown Msg, Msg Type: %s	2		
6083	7	FgCEvTsErrMsgSent	%s> Error Msg (%s) sent to TS.	2		
6084	7	FgCEvTsMsgRcvd	%s> %s Message received.	1		
6085	7	FgCEvTsCfgCmdBlkStatus	%s> Received Configuration Command Status Msg, block status: %s.	1		
6086	7	FgCEvTsCfgCmdStatus	%s> Configuration Command %s, status: %s.	1		
7002	8	FrCEvSnotRltorSim	String %d is not Realtime or Simulation String. Resubmit directive with a Realtime or Simulation String.	1		
7003	8	FrCEvInvalid	DEBUG: %s %s is invalid.	2		
7004	8	FrCEvCmdAuth	User %s and Wks %s already has Command Authority on string %d	1		
7006	8	FrCEvNoResp	No response received from the RTS String Manager on the %s Request.	2		
7007	8	FrCEvFailedReqSt	Failed Request Status received from RTS String Manager on the %s request.	2		
7008	8	FoCEvNold	%s not specified within %s	4	Null	FUI
7010	8	FrCEvNoProc	Failed to process a %s Request. No default string was created.	2		
7011	8	FrCEvNoFP	DEBUG: Unable to find a WsRmsRequestProxy for the RTS String Manager on RTSID: %d.	4		
7012	8	FrCEvInvalidPrID	DEBUG: WsRmsRequestProxy has an invalid RTSID of %d instead of %d.	4		
7013	8	FrCEvUnSReq	Unable to send %s Request Response for a %s Request to %s.	2		
7014	8	FrCEvCmdNum	DEBUG: Illegal number of command line arguments.	4		
7015	8	FrCEvErrCaught	RMS has encountered a %s error. The reason for the error is %s.	2		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
7016	8	FrCEvNoLink	DEBUG: RMS has no link with Controller.	2		
7018	8	FrCEvNoFork	Unable to create a %s.	2		
7020	8	FrCEvUnSucc	Unsuccessful creation of %s process. User should be sure that %s environment variable is being properly set.	2		
7022	8	FrCEvUnable	DEBUG: Unable to find %s in %s list.	2		
7024	8	FrCEvNoFSorBS	Could not find active string %d or it's backup string	2		
7025	8	FrCEvNoS	Unable to locate string %d. User should make sure directive contains the correct string ID.	1		
7026	8	FoCEvUnOpenFile	Unable to open %s file	4	Null	FUI
7027	8	FoCEvFileEmpty	%s File is empty	4	Null	FUI
7029	8	FrCEvStCreate	User unsuccessfully created a %s string.	1		
7030	8	FrCEvInvReqParam	%s Request contains invalid %s	2		
7033	8	FrCEvNoStIDs	Unable to create string due to no available string IDs. User should delete any unnecessary strings.	2		
7036	8	FrCEvReconf	Reconfiguration of %s was %s. If unsuccessful, consult User's Guide for appropriate action.	2		
7038	8	FrCEvDedStConn	Invalid Request: Connection to a Dedicated Replay String is provided automatically.	1		
7039	8	FrCEvWrConn	%s only be connected as %s	1		
7041	8	FrCEvNoAll	User cannot request state check, All, or Default Telemetry	1		
7046	8	FrCEvNoAddList	DEBUG: %s to add %s %s to the %s List.	2		
7047	8	FrCEvUserWsPriv	Both User %s and Workstation %s must be authorized for %s privilege	1		
7048	8	FrCEvExit	String Manager is exiting %s. All strings will be deleted.	4		
7049	8	FrCEvSidLstIns	DEBUG: Unable to insert FUI updates into the set of FUI updates.	2		
7050	8	FrCEvNmSv	%s performed nameserver %s on %s Endpoint	4		
7051	8	FrCEvBadEp	DEBUG: Nameserver returned wrong endpoint for %s process.	1		
7053	8	FrCEvPrConf	%s process %s configured	1		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
7054	8	FrCEvInvProx	DEBUG: Unrecognized process name for the %s process.	2		
7055	8	FrCEvFuiUpd	Unable to update FUI with String Info. Suggest restarting this Userstation.	2		
7057	8	FrCEvReplyEvent	DEBUG: %s reply received by %s. Request response is A is %d.	2		
7058	8	FrCEvReceivedData	DEBUG: RMS received data rather than an object.	2		
7059	8	FrCEvInvConn	User cannot connect when already connected.	1		
7060	8	FrCEvClnUpFailed	RMS was not able to perform cleanup duties. User may need to manually delete processes and cleanup nameserver.	4		
7061	8	FrCEvSCreated	%s processing for string %d was %s.	1		
7062	8	FrCEvInvalEnv	Invalid Environment variable. Be sure that all environment variables are being			
7066	8	FrCEvSetCmdAuth	Cannot set Command authority with user %s and workstation %s.	2		
7068	8	FrCEvNoSw	No %s exists for String ID %d	2		
7070	8	FrCEvUnrecReconfig	Unrecognized %s Reconfiguration Directive for String %d.	2		
7072	8	FrCEvNoConfigChg	No config change was made because the process that the config change applies to does not exist on this host.	2		
7077	8	FrCEvGcAuth	User %s and Wks %s already has Ground Control Authority on string %d	1		
7079	8	FrCEvChangeGcAuth	Ground Control Authority has changed from %s to %s for string %d.	1		
7080	8	FrCEvNoMirr	Must be connected as Mirrored before requesting %s Authority.	1		
7081	8	FrCEvStReconfig	%s reconfigured string processes	1		
7083	8	FrCEvNotGc	User is not the Ground Controller for string %d. User must have Ground Control Authority before requesting this service.	1		
7084	8	FrCEvStop	%s terminated %s Process ID %d.	2		
7085	8	FrCEvStExists	User trying to create a %s string that already exists.	1		
7086	8	FrCEvNoPid	The Ground Parameter %s does not have an associated Parameter ID. Generate a new PID ODF with the proper PIDs.	2		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
7087	8	FrCEvInvalPriv	User %s and his/her userstation must have the %s Privilege before %s.	1		
7088	8	FrCEvChangeAuth	Command Authority has changed from %s to %s for string %d.	1		
7089	8	FrCEvSnotRltSimorRp	String %d is not Realtime, Simulation, or Shared Replay. Resubmit directive with a Realtime, Sim, or Shared Replay String ID.	1		
7090	8	FrCEvInvalidHost	DEBUG: FrGrController has an invalid host of %s.	2		
7091	8	FrCEvInvalidGc	User cannot reconfigure local mirrored processes without Ground Control Authority.	1		
7092	8	FrCEvNoMcast	Unable to retrieve a Multicast Address. Make sure that a mcast address for RMS is within the appropriate config file.	4		
7093	8	FrCEvUnknownString	String type of %d is unknown.	2		
7094	8	FrCEvStillSearch	DEBUG: Still searching for the endpoint for %s.	1		
7095	8	FrCEvTimeOut	Timed out waiting for %s service to configure.	2		
7096	8	FrCEvStrConn	%s connected to String %d as %s.	1		
7097	8	FrCEvNoDb	%s Database Id is not available.	1		
7098	8	FrCEvDeleteString	DEBUG: %s string %d from string table.	1		
7099	8	FrCEvUsersConn	Unable to delete String %d when users are connected. Suggest notifying users to disconnect from String.	1		
7100	8	FrCEvStrDisconn	User %s disconnected from String %d.	1		
7101	8	FrCEvStillStop	Shutting down %s process.	1		
7103	8	FrCEvSnotOp	Realtime String %d is not an Operational String and cannot be backed up.	1		
7104	8	FrCEvSnotRT	String %d is not a Realtime String and cannot be backed up or failed over.	1		
7106	8	FrCEvIncommRts	Unable to Deactivate String %d due to a broken communication link with the RTS.	2		
7107	8	FrCEvNoUpdate	Unable to update the RMS String Table on RTS %d. Suggest restarting RTS %d.	2		
7109	8	FrCEvChangeState	Unable to change state of %s process to %s.	2		
7110	8	FrCEvNoBackup	%s processing does not exist for String %d.	1		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
7111	8	FrCEvDeleteBackup	User must delete backup processing before deleting the active processing.	1		
7112	8	FrCEvActRts	Unable to create Backup String on RTS %d because active string processing exists on this RTS.	1		
7113	8	FrCEvEstServ	Establishing %s service...	1		
7114	8	FrCEvNoSysName	Unable to determine a system name for this device. Check with Sys Administrator to be sure device is configured properly	2		
7115	8	FrCEvNoRole	Unable to determine a role for this device. Check RMS Config file to determine if this device is listed.	4		
7116	8	FrCEvNoWsUpdate	Unable to update Userstation String Tables. Suggest restarting Userstations.	2		
7117	8	FrCEvNoRtsTable	Unable to retrieve RTS RMS Configuration Information.	4		
7118	8	FrCEvSwitchRole	%s switching to %s for string %d.	1		
7119	8	FrCEvNoMonitor	%s to %s monitoring the Realtime String %s.	2		
7120	8	FrCEvStopRole	%s stopping %s for string %d.	1		
7121	8	FrCEvStartRole	%s starting %s for string %d.	1		
7122	8	FrCEvStopMonitorString	Stopping monitoring for string %d.	1		
7123	8	FrCEvActiveSoftwareFailure	Active strand for string %d failed due to failure of %s process. Suggest failover.	3		
7124	8	FrCEvRTSFailed	Realtime server %d, host name %s, failed.	3		
7125	8	FrCEvComplementUnavailable	Complement for local string %d unavailable. %s string assigned to failed RTS %d.	3		
7126	8	FrCEvUserStationUnavailable	String %d %s user station, host name %s, unavailable.	3		
7127	8	FrCEvMonitorUSRequestFailed	%s user station monitor request failed for string %d.	3		
7128	8	FrCEvMonitorSWRequestFailed	Software monitor request failed for string %d. Suggest string deletion.	3		
7129	8	FrCEvUserStationAvailable	String %d %s user station, host name %s, available.	1		
7130	8	FrCEvRTSAvailable	Realtime server %d, host name %s, available.	1		
7131	8	FrCEvProcessingExists	User cannot create backup processing until %s processing is deleted.	1		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
7132	8	FrCEvBackupSoftwareFailure	Backup strand for string %d failed due to failure of %s process. Suggest string delete BACKUP state.	3		
7133	8	FrCEvStIllegal	User illegally trying to create a %s string. Suggest making sure that string's mode is valid.	1		
7134	8	FrCEvModelIllegal	User trying to create a %s string with an invalid mode.	1		
7135	8	FrCEvInvalidDbFile	RMS Configuration File missing the %s section. Suggest creating a new Configuration File with a %s section.	1		
7136	8	FrCEvUnStart	Unable to start %s process for String %d.	1		
7137	8	FrCEvUserPriv	%s is not authorized for %s Privilege.	1		
7138	8	FrCEvHwPriv	Userstation %s is not authorized for %s Privilege.	1		
7139	8	FrCEvNoProxy	%s to find %s proxy.	1		
7140	8	FrCEvCfgError	The current RMS configuration will not allow request parameters with a %s			
7141	8	FrCEvBCreated	%s created backup processing for string %d.	1		
7142	8	FrCEvParamUpdate	Unable to update parameter info for string %d. Suggest deleting backup processing and reissue directive.	1		
7143	8	FrCEvUngrace	RMS performing ungraceful shutdown on %s process with PID %d.	1		
7144	8	FrCEvConnect	User must be connected to String %d before requesting %s service.	1		
7145	8	FrCEvInvalidServer	A server Id of %d is invalid.	1		
7146	8	FrCEvInvalidFailoverOrder	Database File does not contain unique Failover Order for each process. Suggest restart with new Config File.	2		
7147	8	FrCEvNoInfo	Unable to find %s information about Server %d.	2		
7148	8	FrCEvNoDiagnose	Unable to determine Server %d status.	2		
8001	9	FoCEvProcessStarting	%s starting.	1		
8002	9	FoCEvProcessTerminating	%s terminating.	1		
8004	9	FoCEvRWxmsg	%s %s	4		
8005	9	FoCEvProcessFailInit	%s process failed initialization	4		
8006	9	FoCEvProcessFailing	%s terminating with critical failure.	4		
8007	9	FoCEvEnvVarFailure	%s can not read environment variable : %s.	4		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
8008	9	FoCEvODFFailure	%s can not read Operational Data File (ODF) %s.	4		
8009	9	FoCEvNSLookupFail	%s Could not locate %s	2		
8010	9	FoCEvAttemptReconnect	%s attempting to reconnect to %s	1		
8011	9	FoCEvReconnectSuccess	%s successfully reconnected to %s	1		
8012	9	FoCEvReconnectFailed	%s failed to reconnect to %s	2		
8013	9	FdCEvNodeUp	Node %s is available as of %s	2		
8014	9	FdCEvNodeDown	Node %s is unavailable as of %s	2		
8015	9	FdCEvNodeAdded	Node %s added as of %s	2		
8016	9	FdCEvNodeDeleted	Node %s deleted as of %s	2		
8017	9	FdCEvInterfaceUp	Interface %s is available as of %s	2		
8018	9	FdCEvInterfaceDown	Interface %s is unavailable as of %s	2		
8019	9	FdCEvInterfaceAdded	Interface %s added as of %s	2		
8020	9	FdCEvInterfaceDeleted	Interface %s deleted as of %s	2		
8021	9	FdCEvInterfaceDisconnected	Interface %s is disconnected as of %s	2		
8022	9	FdCEvInterfaceMarginal	Interface %s is marginal as of %s	2		
8023	9	FdCEvConnectionUp	Connection %s is up as of %s	2		
8024	9	FdCEvConnectionDown	Connection %s is down as of %s	2		
8025	9	FdCEvConnectionAdded	Connection %s added as of %s	2		
8026	9	FdCEvConnectionDeleted	Connection %s deleted as of %s	2		
8027	9	FdCEvConnectionNormal	Connection %s is normal as of %s	2		
8028	9	FdCEvConnectionMarginal	Connection %s is marginal as of %s	2		
8029	9	FdCEvConnectionCritical	Connection %s is critical as of %s	2		
8030	9	FdCEvSegmentAdded	Segment %s added as of %s	2		
8031	9	FdCEvSegmentDeleted	Segment %s deleted as of %s	2		
8032	9	FdCEvSegmentNormal	Segment %s is normal as of %s	2		
8033	9	FdCEvSegmentMarginal	Segment %s is marginal as of %s	2		
8034	9	FdCEvSegmentCritical	Segment %s is critical as of %s	2		
8035	9	FdCEvNetworkAdded	Network %s added as of %s	2		
8036	9	FdCEvNetworkDeleted	Network %s deleted as of %s	2		
8037	9	FdCEvNetworkNormal	Network %s is normal as of %s	2		
8038	9	FdCEvNetworkMarginal	Network %s is marginal as of %s	2		
8039	9	FdCEvNetworkCritical	Network %s is critical as of %s	2		
8040	9	FoCEvResponseFailed	%s failed to send response back to calling process.	2		
8041	9	FoCEvFileNotFound	%s process cannot read file %s.	2		
8042	9	FoCEvLoadEntryNotFound	Load Catalog Entry for %s not found	3		
8043	9	FoCEvConnectionErr	%s unable to connect to %s	3		
8044	9	FoCEvFileReadError	%s failed to read from file %s	3		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
8049	9	FoCEvIncompleteEnvironment	%S could not find value for %s in configuration information.	3		
8050	9	FoCEvConfigLookupFailed	%s failed lookup of configuration information for %s.	2		
8051	9	FoCEvTIVhostdown	Host %s reports that host %s does not respond	3		
8052	9	FoCEvTIVloadavg	Host %s has more than %s ready (waiting) jobs	2		
8053	9	FoCEvTIVpageouts	The number of pages written out by the memory manager on host %s has increased more than %s	2		
8054	9	FoCEvTIVmailqlen	Host %s has more than %s entries in its outgoing mail queue	2		
8055	9	FoCEvTIVulogins	Host %s reports that user %s has more than %s logins	2		
8056	9	FoCEvTIVulogintot	Host %s has more than %s users logged in	2		
8057	9	FoCEvTIVzombies	Host %s has more than %s zombie processes	2		
8058	9	FoCEvTIVswapavail	Host %s has less than %s swap space available	3		
8059	9	FoCEvTIVfilechk	Host %s has detected a checksum change for file %s, indicating that the file has been changed	3		
8060	9	FoCEvTIVfileperm	Host %s has detected a change in the file permissions on %s from %s	3		
8061	9	FoCEvTIVfilesize	Host %s reports that file %s is larger than %s	2		
8062	9	FoCEvTIVtivdbspace	Host %s reports that the Tivoli database has less than %s of disk space available	2		
8063	9	FoCEvTIVdiskavail	Host %s reports that filesystem %s has less than %s of free space	2		
8064	9	FoCEvTIVdiskused	Host %s reports that filesystem %s has more than %s space in use	2		
8065	9	FoCEvTIVdiskusedpct	Host %s reports that filesystem %s has more than %s space in use	2		
8066	9	FoCEvTIVinodes	Host %s reports that filesystem %s has fewer than %s inodes available	2		
8067	9	FoCEvTIVinodesused	Host %s reports that filesystem %s has more than %s inodes in use	2		
8068	9	FoCEvTIVinodesusedpct	Host %s reports that filesystem %s has more than %s inodes in use	2		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
8069	9	FoCEvTIVbadnfs	Host %s reports that the number of NFS bad calls has increased more than %s	2		
8070	9	FoCEvTIVnetouterr	Host %s reports that the number of TCP/IP output packet errors has increased more than %s	2		
8071	9	FoCEvTIVnetcollpct	Host %s reports that the ratio of network collisions per output packet is more than %s	2		
8072	9	FoCEvTIVnetcoll	Host %s reports the number of TCP/IP network collisions has increased more than %s	2		
8073	9	FoCEvTIVbadrpc	Host %s reports the number of rejected RPC request has increased more than %s	2		
8074	9	FoCEvTIVrpctmout	Host %s reports the number of RPC timeouts has increased more than %s	2		
8075	9	FoCEvTIVnetin	Host %s reports that the number of TCP/IP packets has increased more than %s	2		
8076	9	FoCEvTIVnetinerr	Host %s reports that the number of TCP/IP input packet errors has increased more than %s	2		
8077	9	FoCEvTIVprintjobs	Host %s reports that the print queue %s has more than %s jobs	2		
8078	9	FoCEvTIVprintjobsize	Host %s reports that the total size of jobs queued on printer queue %s is more than %s	2		
8079	9	FoCEvTIVprintstat	Host %s reports that print queue %s has become unavailable	3		
8080	9	FoCEvTIVProcessDead	Host %s reports that process %s has died	3		
8081	9	FoCEvTIVdaemon	Host %s reports that daemon %s has died	3		
8082	9	FoCEvTIVdaemonct	Host %s reports that daemon %s has more than %s copies running	2		
8083	9	FoCEvRcvdUnknownMsg	Received unknown message, message id %d	2		
8084	9	FoCEvUnknownTivMonitor	Tivoli gateway received event for unknown monitor; monitor=%s, resource=%s, trigger=%s, host=%s	3		
8085	9	FoCEvTIVnetout	Host %s reports that the number of TCP/IP transmitted packets has increased more than %s	2		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
8086	9	FoCEvFileMetaStoreFailure	%s failure storing file %s with file-meta. %s	2		
8087	9	FoCEvFileMetaRetrieveFailure	%s failure retrieving file %s with file-meta. %s	2		
8088	9	FoCEvTIVoservdown	Host %s reports that the Tivoli oserv daemon on %s is down	2		
8089	9	FoCEvTIVoservup	Host %s reports that the Tivoli oserv daemon on %s is now up	1		
8090	9	FoCEvTIVhostup	Host %s reports that host %s is now available	1		
8091	9	FoCEvFileRemoveFailure	Error removing file %s. %s	2		
8092	9	FoCEvTIVCPUUtilization	Host %s reports that CPU utilization is above %s	1		
9000	10	FtCEvBadCcsdsVersion	%s: Unable to decom packet; received CCSDS version %d does not match expected CCSDS verison %d.	1		
9001	10	FtCEvUnexpectedPacketApi d	%s: Unable to decom packet; received APID %d does not match expected APID %d.	1		
9002	10	FtCEvUnexpectedPacketLength	%s: Unable to decom packet; received length %d does not match expected length %d.	1		
9003	10	FtCEvPacketSequenceError	%s: CCSDS packet sequence error, %d packet(s) missing between %d and %d.	1		
9004	10	FtCEvConversionBoundsError	A bounds error occurred determining the conversion set.	1		
9005	10	FtCEvConversionGroupError	Conversion group error	1		
9006	10	FtCEvInvalidConversionId	Invalid Conversion ID	1		
9007	10	FtCEvPacketFillData	%s: Packet received contains all fill data.	1		
9008	10	FtCEvPacketRSVerifyError	%s: Packet failed Reed-Solomon verification.	1		
9009	10	FtCEvCoefficientCount	%s: Polynomial conversion has at most %d coefficients.	1		
9010	10	FtCEvCantReadMapConfigFil e	%s: Unable to read packet map configuration file %s; cannot seek to beginning.	3		
9011	10	FtCEvCantReadStateFile	%s: Unable to read packet map file %s; file is empty.	3		
9012	10	FtCEvCantWriteMapConfigFil e	%s: Unable to write packet map configuration file %s; cannot seek to beginning.	3		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
9013	10	FtCEvNoPacketMapsFound	%s: Unable to decom packet; no packet maps found.	3		
9014	10	FtCEvHandleSendError	Handle Send Error.	3		
9018	10	FtCEvMemoryError	%s: Could not allocate memory for packet buffer.	3		
9019	10	FtCEvCantGetData	%s: Unable to extract data for %s; target buffer size is 0.	3		
9020	10	FtCEvDataBoundsError	%s: Unable to extract data for %s; offset %d, length %d exceed packet buffer size of %d.	3		
9021	10	FtCEvCantInitAnalog	Analog Parameter init failed	2		
9022	10	FtCEvCantInitDiscrete	Discrete Parameter init failed	2		
9023	10	FtCEvDataTimeout	%s: Timeout receiving data, timeout is %d seconds.	3		
9024	10	FtCEvCommError	%s: Communication error during %s.	3		
9025	10	FtCEvExitOk	%s: Exiting normally.	1		
9026	10	FtCEvTaskMemoryError	%s: Out of memory during %s.	3		
9027	10	FtCEvFatalError	%s: Terminating due to fatal error.	4		
9028	10	FtCEvInvalidArgument	%s: Received invalid command line argument: %s.	3		
9029	10	FtCEvInvalidArgumentNumber	%s: Received invalid number of command line arguments: %d.	3		
9030	10	FtCEvInvalidPid	%s: Pid %d does not exist.	2		
9031	10	FtCEvRWExternalError	%s: Detected an RW External error during %s.	3		
9032	10	FtCEvRWInternalError	%s: Detected an RW Internal error during %s.	3		
9033	10	FtCEvRWXmsgError	%s: Detected an RW Xmsg error during %s.	3		
9034	10	FtCEvReceiveDataError	Error Receiving Data.	3		
9035	10	FtCEvUnidentifiedInitError	%s: Detected an unknown error during %s.	3		
9036	10	FtCEvUnidentifiedRunError	%s: Detected an unknown error during execution.	3		
9037	10	FtCEvFileOpenErr	System open error on fosconfig file	1		
9038	10	FtCEvInvalidSwitch	Invalid Switch type.	1		
9039	10	FtCEvRedLimitViolation	%s: %s Red %s limit violation: %s (lo: %s, hi: %s).	2		
9040	10	FtCEvYellowLimitViolation	%s: %s Yellow %s limit violation: %s (lo: %s, hi: %s).	2		
9041	10	FtCEvBackInLimits	%s: %s has returned from %s limit violation: %s (lo: %s, hi: %s).	1		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
9042	10	FtCEvDeltaLimitViolation	%s: %s Delta limit violation: %s (delta: %s).	2		
9043	10	FtCEvDecomIsReady	%s: Ready to receive telemetry packets.	1		
9044	10	FtCEvDumpStart	%s: Memory dump file %s created, word count is %d.	1		
9045	10	FtCEvDumpComplete	%s: Memory dump file %s is complete, %d words dumped.	1		
9046	10	FtCEvDumpTimeout	%s: Memory dump data timeout: %d words were dumped in dump file %s.	2		
9047	10	FtCEvDumpAborted	%s: Memory dump aborted; deleting file %s, %d words were dumped.	2		
9048	10	FtCEvDumplIsReady	%s: Ready to receive diagnostic packets.	1		
9049	10	FtCEvUnexpectedRtAddress	%s: Received unexpected RT Address. RT Address %d was expected, RT Address %d was received.	2		
9050	10	FtCEvFileMetaNotStored	%s: %s was not stored sucessfully by the File MetaServer.	2		
9051	10	FtCEvRedAlarmLimitViolation	%s: %s Red %s limit violation: %s (lo: %s, hi: %s).	3		
9052	10	FtCEvConfigRequestFail	%s: %s configuration request failed.	2		
9053	10	FtCEvCantSendTaskResponse	%s: Unable to send a request status to client.	2		
9054	10	FtCEvErrCaught	%s: Configuration %s error encountered; reason is %s.	2		
9055	10	FtCEvDumpDirectiveFail	%s: %s directive failed.	2		
9056	10	FtCEvInvalidDumpData	%s: Valid packet data indicator is false; data packet is zero filled.	1		
9057	10	FtCEvCantGetHeaderData	%s: Unable to extract header data; target buffer size is 0.	3		
9058	10	FtCEvHeaderDataBoundsError	%s: Unable to extract header data; offset %d, lenght %d exceed packet buffer size of %d.	3		
9059	10	FtCEvDiscreteMiscompare	%s: Miscompare on PID %d: Expected value = %s, Actual value = %s.	2		
9060	10	FtCEvIntMiscompare	%s: Miscompare on PID %d: Expected range = %d to %d, Actual value = %d.	2		
9061	10	FtCEvRealMiscompare	%s: Miscompare on PID %d: Expected range = %f to %f, Actual value = %f.	2		
9062	10	FtCEvStateCheckComplete	%s: Completed with %d successes and %d miscompares.	1		

Table B-1. Event Message Definitions (continued)

ID	Type	Name	Background	Severity	Trigger	Process
9066	10	FtCEvStChkDataNotAvailable	%s: Could not state check %s, data is not available.	2		
9067	10	FtCEvStChkDataBadQuality	%s: Could not state check %s, data quality is bad.	2		
9068	10	FtCEvDumpFileNotOpen	%s: Unable to open dump file %s for writing.	2		
9069	10	FtCEvFileMetaStored	%s: Successfully stored dump file %s in the File Meta Server.	1		
9070	10	FtCEvStateCheckIsReady	%s: Ready to receive directives.	1		
9071	10	FtCEvCantFetchTable	%s: Communication error occurred while trying to retrieve an expected state table from CMS.	3		
9072	10	FtCEvInvalidEnvVar	%s: The environment variable for %s is invalid.	3		
9073	10	FtCEvUnableToNotifyCms	Unable to successfully notify CMS of completed dump	2		
9074	10	FtCEvChangeState	%s: Changing state from %s to %s.	1		
9075	10	FtCEvPackGenIsReady	%s: Ready to receive directives.	1		
9076	10	FtCEvDumpNotificationRcvd	Received notification of impending Memory Dump	1		
9077	10	FtCEvStateTableLoaded	%s: Loaded expected state table with %d parameters	1		

This page intentionally left blank.

Appendix C. FOS Ground Parameters

Table C-1. Packet Types

Interface See Table C-2	Packet Types	Header Mnemonic	Length in bytes
1	1	EDS_HD_EDOS_HEADER	32
2	2	GcmrUserReacqMsg	32
2	3	GcmrFwdLinkSweepReqMsg	31
2	4	GcmrFwdLinkEIRPReconfigMsg	32
2	5	GcmrExpandUserFreqMsg	31
2	6	GcmrMaFwdLinkReconfigMsg	53
2	7	GcmrSsaFwdLinkReconfigMsg	70
2	8	GcmrKsaFwdLinkReconfigMsg	75
2	9	GcmrMaRtnLinkReconfigMsg	86
2	10	GcmrSsaRtnLinkReconfigMsg	112
2	11	GcmrKsaRtnLinkReconfigMsg	149
2	12	GcmrDopplerCompInhibitMsg	32
2	13	GcmrDispositionMsg	41
2	14	GcmrStatusMsg	34
2	15	GcmrCommTestMsg	18
3	16	GCM_ER_CODES	0
4	17	CDA_GrndMsgHdrBlk	24
4	18	FgCEiContentIndicatorBlk	47
4	19	FgCEiRtnLkPhyChanBlk	93
4	20	FgCEiFwdLkStatusBlk	60
4	21	FgCEiCcsdsVCDUStatusBlk	38
6	22	UpdTimeTransferMsgClass	45
7	23	UpdCommTestMsg	18
6	24	UpdRtnChTimeDelayMsg	126
8	25	UpdRequestMsg	27
6	26	UpdAcqFailureMsgClass	24
5	27	UpdNccUpdMsgHdr	22
5	28	UpdSaServiceHdr	100
5	29	UpdMaServiceHdr	100
5	30	UpdSimServiceHdr	100
5	31	UpdSsaFwdServicePckt	100
5	32	UpdKsaFwdServicePckt	100
5	33	UpdSsaDg1Return	100
5	34	UpdSsaDg2Return	100
5	35	UpdSsaDataQuality	100
5	36	UpdKsaDg1Return	100
5	37	UpdKsaDg2Return	100
5	38	UpdKsaDataQuality	100
5	39	UpdMaForward	100
5	40	UpdMaReturn	100
5	41	UpdMaDataQuality	100
5	42	UpdSimForward	100
5	43	UpdSimReturn	100

Table C-2. Interface Type

Number	Description
1	EDOS Packet
2	GCMR packets
3	GCMR error codes
4	CODA packets
5	UPD message packets
6	UPD Performance Pack
7	UPD Comm Packets
8	UPD Request packets

Table C-3 Value Type Definitions

Value	Definition
1	Integer
2	String or Text
3	Real or floating Point
4	Undefined
5	Discrete

Table C-4. Packet Definitions

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X=variable	Value Type	Descriptor
1	EDS_ARCHIVE_FLAG	DB	0	0	Byte	1	1	Packet Decom task database display parameter, 1=archive packets, 0=don't archive.
1	EDS_CCSDS_HDR_LENGTH	DB	0	0	Byte	48	1	Packet Decom task database value containing the length of the CCSDS header. For AM1, it will be 15 bytes.
1	EDS_CHANNEL_I	DB	0	0	Byte	0	1	Packet Decom task I channel APIID display output parameter.
1	EDS_CHANNEL_Q	DB	0	0	Byte	0	1	Packet Decom task Q channel APIID display output parameter.
1	EDS_CRC_FAILURE	E9	76	1	Bit	0	1	CRC Failure indication 0=no failure
1	EDS_CYCLE_COUNT	DB	0	0	Byte	0	1	Master cycle count that is incremented by 1 for every 64 packets
1	EDS_ESH_LENGTH	DB	0	0	Byte	20	1	Packet Decom task database value. The task uses this to make it's way over to the primary header. For AM1, it will be 20 bytes.
1	EDS_ESH_VERSION	E1	0	4	Bit	0	1	EDOS Service Header Version
1	EDS_EXPECT_VERSION	DB	0	0	Byte	0	1	Packet Decom task database value. The task compares this value with the CCSDS version number received in the primary header.
1	EDS_FILL_LOC	E15	11	16	Byte	0	1	location of first byte of EDOS generated fill data
1	EDS_FILLDATA	E16	13	2	Byte	0	1	spare
1	EDS_GRT	E3	8	7	Byte	0	XXXXXX X	EDOS Ground Receipt time in NASA PB5 format
1	EDS_HEADER_FLAG	DB		0	Byte	1	1	Packet Decom task data base value, 1=EDOS service header present 0=EDOS service header not present.
1	EDS_LISTEN_PORT	DB	0	0	Byte	0	1	Listen Port Assignment, Provides Decom task which port to configure to in anticipation of receiving data. Not currently implemented
1	EDS_PCKT_LENGTH_ERR	E11	78	1	Bit	0	1	No detected length error between Path SDU packet header and actual packet length =0
1	EDS_QUALITY	DB	144	1	Byte	0	1	Reed-Solomon error control flag; 1=bad quality packet; or 0=good quality packet.
1	EDS_RECOVER_ID	E7	74	1	Bit	0	1	Recovery processing indicator 1=data from EDOS data capture recovery process
1	EDS_RT_ADDRESS	DB	280	8	Byte	0	1	Memory dump task address display parameter. Contains the address of the Real-time dump data being received.

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X=variable	Value Type	Descriptor
1	EDS_SCID	E14	10	8	Bit	0	1	CCSDS Spacecraft ID Decoded by EDOS
1	EDS_SDU_TYPE	E2	4	4	Bit	0	1	EDOS Service Data Unit data type 0= VCDU 1=CCSDS packet 2=CLCW
1	EDS_SEC_HDR_LENGTH	DB	0	0	Byte	72	1	Packet Decom task database value, informing it of the size in bytes of the secondary header. For AM1, it will always be 9. Fixed at 9 bytes (octets)?
1	EDS_SEQ_DISCONT	E5	72	1	Bit	0	1	EDOS detected VCDU sequence discontinuity in previous SDU=1
1	EDS_SEQ_FLAG	C5	2	2	Bits	0	1	CCSDS primary header called sequence flags
1	EDS_SSC_DISCONT	E10	77	1	Bit	0	1	EDOS detected packet discontinuity in SSC for the APID 1= true
1	EDS_TDRSS_PORT	E4	64	1	Byte	0	1	EDOS Physical Port
1	EDS_TEST_DATA	E8	75	1	Bit	0	1	EDOS test Data 1=Test
1	EDS_TIMEOUT	DB		0	Byte	5	1	Packet Decom task database value that sets the packet timeout limit
1	EDS_VALID_DATA_16K	DB	13471	1	Byte	0	1	Memory dump task display parameter of the packet 'valid data bit' of the 16K dump packet. 1=this 16K dump packet contains valid dump data; or 0=this 16K dump packet does not contain valid dump data.
1	EDS_VALID_DATA_1K	DB	1823	1	Byte	0	1	Memory dump task display parameter of the packet 'valid data bit' of the 16K dump packet. 1=this 1K dump packet contains valid dump data; or 0=this 1K dump packet does not contain valid dump data.
1	EDS_VCDU_ERR	E17	19	10	Bit	0	1	VCDU level Reed Solomon control flag, Passed =0
1	EDS_VCDU_HDR	E18	145	5	Bits	0	1	Source VCDU Header error results
1	EDS_VCDU_PLAYBACK	E6	73	1	Bit	0	1	VCDU contains data from Spacecraft recorder=1
1	EDS_VCID	E14	10	6	Bit	0	1	CCSDS VCID decoded by EDOS
1	EDS_WORD_COUNT	DB	288	16	Byte	0	1	Memory dump task word count display parameter. It contains the number of 16-bit words in this dump packet.
1	SDU_CCSDS_VER	C1	0	3	Bit	0	000	CCSDS version number
1	SDU_PACKET_SEQ	C6	2	14	Bit	0	1	CCSDS packet sequence count
1	SDU_PACKET_TYPE	C2	0	1	Bit	0	1	CCSDS packet type from primary header
1	SDU_PCKT_APID	C4	0	11	Bit	0	1	CCSDS APID
1	SDU_PCKT_LENGTH	C7	4	16	Byte	0	1	CCSDS packet length
1	SDU_PCKT_QUICK_LOOK	C9	7	1	Byte	0	1	CCSDS Quick Look Flag
1	SDU_PCKT_USER_FLAG	C10	7	7	Bit	0	1	CCSDS packet User Flags
1	SDU_SCTIME	C8	6	8	Byte	XXXXXX XX	1	CCSDS Spacecraft time
1	SDU_SEC_HEADER	C3	0	1	Bit	0	1	CCSDS Secondary Header Flag =1

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X=variable	Value Type	Descriptor
2	GCM_UR_LINK	8	29	2	Byte	XX	1	Link 00=MA 01=SSA1 02=SSA2 03=KSA1 04=KSA2 21 to 25= MAR 01 to MAR 05
2	GCM_UR_MSG_CLASS	3	9	2	Byte	03	1	Message Class User ReAcq Request
2	GCM_UR_MSG_ID	2	2	7	Byte	XXXXXX X	2	Message ID
2	GCM_UR_MSG_TYPE	1	0	2	Byte	98	1	Message Type GCMR
2	GCM_UR_PASSWD	6	22	4	Byte	test	2	Password
2	GCM_UR_SUPIDEN	4	11	7	Byte	A1873XX	2	SUPIDEN
2	GCM_UR_SUPPORT	9	31	1	Byte	X	1	Service Support Type 0=forward 1=return
2	GCM_UR_TDRS	7	26	3	Byte	AAA	2	TDRS Designator, Three Letter Alphanumeric
2	GCM_UR_USER_ID	5	18	4	Byte	AM1	2	Requester ID
3	GCM_FS_LINK	8	29	2	Byte	XX	1	Link 00=MA 01=SSA1 02=SSA2 03=KSA1 04=KSA2
3	GCM_FS_MSG_CLASS	3	9	2	Byte	05	1	Message Class Forward Link Sweep
3	GCM_FS_MSG_ID	2	2	7	Byte	XXXXXX X	2	Message ID
3	GCM_FS_MSG_TYPE	1	0	2	Byte	98	1	Message Type GCMR
3	GCM_FS_PASSWD	6	22	4	Byte	test	2	Password
3	GCM_FS_SUPIDEN	4	11	7	Byte	A1873XX	2	SUPIDEN
3	GCM_FS_TDRS	7	26	3	Byte	AAA	2	TDRS Designator, Three Letter Alphanumeric
3	GCM_FS_USER_ID	5	18	4	Byte	AM1	2	Requester ID
4	GCM_FE_LINK	8	29	2	Byte	XX	1	Link 01=SSA1 02=SSA2 03=KSA1 04=KSA2
4	GCM_FE_MSG_CLASS	3	9	2	Byte	06	1	Message Class Forward EIRP Change
4	GCM_FE_MSG_ID	2	2	7	Byte	XXXXXX X	2	Message ID
4	GCM_FE_MSG_TYPE	1	0	2	Byte	98	1	Message Type GCMR
4	GCM_FE_PASSWD	6	22	4	Byte	test	2	Password
4	GCM_FE_POWER	9	31	1	Byte	0	1	Power 0=Normal 1= High
4	GCM_FE_SUPIDEN	4	11	7	Byte	A1873XX	2	SUPIDEN
4	GCM_FE_TDRS	7	26	3	Byte	AAA	2	TDRS Designator, Three Letter Alphanumeric
4	GCM_FE_USER_ID	5	18	4	Byte	AM1	2	Requester ID

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X=variable	Value Type	Descriptor
5	GCM_EU_LINK	8	29	2	Byte	00	1	Link 01=SSA1 02=SSA2 03=KSA1 04=KSA2 21 to 25= MAR 01 to MAR 05
5	GCM_EU_MSG_CLASS	3	9	2	Byte	07	1	Message Class Expanded User Frequency Uncertainty (non-coherent return i.e. DG1M2)
5	GCM_EU_MSG_ID	2	2	7	Byte	XXXXXX X	2	Message ID
5	GCM_EU_MSG_TYPE	1	0	2	Byte	98	1	Message Type GCMR
5	GCM_EU_PASSWD	6	22	4	Byte	test	2	Password
5	GCM_EU_SUPIDEN	4	11	7	Byte	A1873XX	2	SUPIDEN
5	GCM_EU_TDRS	7	26	3	Byte	AAA	2	TDRS Designator, Three Letter Alphanumeric
5	GCM_EU_USER_ID	5	18	4	Byte	AM1	2	Requester ID
6	GCM_MF_ANTENNA	10	32	1	Byte	0	1	User Despun Antenna 0=no type 1=type 1 2=type 2
6	GCM_MF_DOPCOMP	13	52	1	Byte	0	1	Doppler Compensation Required, Yes=1 No=0
6	GCM_MF_FREQ	12	42	10	Byte	2106XXX XX	1	Spacecraft Receive Frequency LSD=10HZ
6	GCM_MF_LINK	8	29	2	Byte	00	1	Link Fixed Value MA=00
6	GCM_MF_MSG_CLASS	3	9	2	Byte	04	1	Message Class User reconfiguration
6	GCM_MF_MSG_ID	2	2	7	Byte	XXXXXX X	2	Message ID
6	GCM_MF_MSG_TYPE	1	0	2	Byte	98	1	Message Type GCMR
6	GCM_MF_PASSWD	6	22	4	Byte	test	2	Password
6	GCM_MF_RATE	11	33	9	Byte	0	1	Data Rate
6	GCM_MF_SUPIDEN	4	11	7	Byte	A1873XX	2	SUPIDEN
6	GCM_MF_SUPPORT	9	31	1	Byte	0	1	Service Support Type 0=forward
6	GCM_MF_TDRS	7	26	3	Byte	AAA	2	TDRS Designator, Three Letter Alphanumeric
6	GCM_MF_USER_ID	5	18	4	Byte	AM1	2	Requester ID
7	GCM_SF_ANTENNA	10	32	1	Byte	0	1	User Despun Antenna 0=no type 1=type 1 2=type 2
7	GCM_SF_CONFIG_S	21	69	1	Byte	ASCII Space	1	Shuttle Data Configuration
7	GCM_SF_DOPCOMP	17	65	1	Byte	0	1	Doppler Compensation Yes=1 No=0
7	GCM_SF_DOPCOMP_S	18	66	1	Byte	ASCII Space	1	Shuttle Carrier
7	GCM_SF_FREQ	12	42	10	Byte	02106XX XXX	1	Spacecraft Receive Frequency Normal User LSD=10HZ
7	GCM_SF_FREQ_S	13	52	10	Byte	ASCII spaces	1	Receive Frequency Shuttle
7	GCM_SF_LINK	8	29	2	Byte	01	1	Link 01=SSA1 02=SSA2
7	GCM_SF_MSG_CLASS	3	9	2	Byte	04	1	Message Class User Reconfiguration

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X=variable	Value Type	Descriptor
7	GCM_SF_MSG_ID	2	2	7	Byte	XXXXXX X	2	Message ID
7	GCM_SF_MSG_TYPE	1	0	2	Byte	98	1	Message Type GCMR
7	GCM_SF_PASSWD	6	22	4	Byte	test	2	Password
7	GCM_SF_PNDOP_S	19	67	1	Byte	ASCII Space 0	1	Shuttle PN Rate
7	GCM_SF_PNMOD	16	64	1	Byte	1	1	Command Channel PN Yes=1
7	GCM_SF_PNMOD_S	20	68	1	Byte	ASCII Space	1	Shuttle PN Modulation
7	GCM_SF_POLAR	14	62	1	Byte	0	1	Polarization Normal User 0=LCP, 1=RCP
7	GCM_SF_POLAR_S	15	63	1	Byte	ASCII Space	1	Polarization Shuttle
7	GCM_SF_RATE	11	33	9	Byte	00000010 00	1	Data Rate nominally 1 Kbps
7	GCM_SF_SUPIDEN	4	11	7	Byte	A1873XX	2	SUPIDEN
7	GCM_SF_SUPPORT	9	31	1	Byte	0	1	Service Support Type Forward =0
7	GCM_SF_TDRS	7	26	3	Byte	AAA	2	TDRS Designator, Three Letter Alphanumeric
7	GCM_SF_USER_ID	5	18	4	Byte	AM1	2	Requester ID
8	GCM_KF_DOPCOMP	17	73	1	Byte	0	1	Doppler Compensation Normal User Yes=1 No=0
8	GCM_KF_DOPCOMP_S	18	74	1	Byte	ASCII Space	1	Doppler Compensation Shuttle
8	GCM_KF_FREQ	12	50	10	Byte	13775XX XXX	1	Receive Frequency Normal User LSD=10HZ
8	GCM_KF_FREQ_S	13	60	10	Byte	ASCII Spaces	1	Receive Frequency Shuttle
8	GCM_KF_LINK	8	29	2	Byte	00	2	Link 03=KSA1 04=KSA2
8	GCM_KF_MSG_CLASS	3	9	2	Byte	04	1	Spacecraft Receive Frequency
8	GCM_KF_MSG_ID	2	2	7	Byte	XXXXXX X	2	Message ID
8	GCM_KF_MSG_TYPE	1	0	2	Byte	98	1	Message Type GCMR
8	GCM_KF_PASSWD	6	22	4	Byte	test	2	Password
8	GCM_KF_PNMOD	16	72	1	Byte	0	1	Command Channel PN
8	GCM_KF_POLAR	14	70	1	Byte	0	1	Polarization Normal User 0=LCP, 1=RCP
8	GCM_KF_POLAR_S	15	71	1	Byte	ASCII Space	1	Polarization Shuttle
8	GCM_KF_RATE	10	32	9	Byte	XXXXXX XXX	1	Data Rate Normal User LSD=1bps
8	GCM_KF_RATE_S	11	41	9	Byte	ASCII Spaces	1	Data Rate Shuttle
8	GCM_KF_SUPIDEN	4	11	7	Byte	A1873XX	2	SUPIDEN
8	GCM_KF_SUPPORT	9	31	1	Byte	0	1	Service Support Type 0=forward
8	GCM_KF_TDRS	7	26	3	Byte	AAA	2	TDRS Designator, Three Letter Alphanumeric
8	GCM_KF_USER_ID	5	18	4	Byte	AM1	2	Requester ID
9	GCM_MR_ANTENNA	10	32	1	Byte	0	1	User Despun Antenna 0=no type 1= type 1 2= type 2
9	GCM_MR_FREQ	13	51	10	Byte	02287XX XXX	1	Spacecraft Transmit Frequency

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X=variable	Value Type	Descriptor
9	GCM_MR_IFORMAT	17	72	1	Byte	0	1	Data Format I Channel 0=NRZ-L 1=NRZ-M 2=NRZ-S
9	GCM_MR_IG2INVERSION	21	76	1	Byte	0	1	G2 Inversion I Channel
9	GCM_MR_IJITTER	19	74	1	Byte	0	1	Data Bit Jitter I Channel 0=None 1=0.01% 2=0.1%
9	GCM_MR_IRATE	11	33	9	Byte	XXXXXX XXX	1	Data Rate I Channel LSD=1bps
9	GCM_MR_ISTREAM	25	80	3	Byte	0	1	Data Stream ID I Channel
9	GCM_MR_LINK	8	29	2	Byte	00	1	Link 21 to 25= MAR 01 to MAR 05
9	GCM_MR_MAXEIRP	14	61	4	Byte	0	1	Max EIRP, sign and 3 digits, LSD=0.1dBW
9	GCM_MR_MINEIRP	15	62	4	Byte	0	1	Min EIRP, sign and 3 digits, LSD=0.1dBW
9	GCM_MR_MODE	23	78	1	Byte	0	1	Mode
9	GCM_MR_MSG_CLASS	3	9	2	Byte	04	1	Message Class User Reconfiguration
9	GCM_MR_MSG_ID	2	2	7	Byte	XXXXXX X	2	Message ID
9	GCM_MR_MSG_TYPE	1	0	2	Byte	98	1	Message Type GCMR
9	GCM_MR_NULLREQ	24	79	1	Byte	0	1	Null Required
9	GCM_MR_PASSWD	6	22	4	Byte	test	2	Password
9	GCM_MR_QFORMAT	18	73	1	Byte	0	1	Data Format Q Channel 0=NRZ-L 1=NRZ-M 2=NRZ-S
9	GCM_MR_QG2INVERSION	22	77	1	Byte	0	1	G2 Inversion Q Channel
9	GCM_MR_QJITTER	20	75	1	Byte	0	1	Data Bit Jitter Q Channel 0=None 1=0.01% 2=0.1%
9	GCM_MR_QRATE	12	42	9	Byte	XXXXXX XXX	1	Data Rate Q Channel LSD=1bps
9	GCM_MR_QSTREAM	26	83	3	Byte	0	1	Data Stream ID Q Channel
9	GCM_MR_RATIO	16	69	3	Byte	0	1	IQ Channel Power Ratio, sign and 2 digits, LSD=0.1dB
9	GCM_MR_SUPIDEN	4	11	7	Byte	A1873XX	2	SUPIDEN
9	GCM_MR_SUPPORT	9	31	1	Byte	1	1	Service Support Type 1=Return
9	GCM_MR_TDRS	7	26	3	Byte	AAA	2	TDRS Designator, Three Letter Alphanumeric
9	GCM_MR_USER_ID	5	18	4	Byte	AM1	2	Requester ID
10	GCM_SR_ANTENNA	10	32	1	Byte	0	1	User Despun Antenna 0= no type 1= type 1 2= type 2
10	GCM_SR_DATAGROUP	27	97	1	Byte	0	1	TDRS Data Group (DG) 1=DG1 2=DG2

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X=variable	Value Type	Descriptor
10	GCM_SR_DG1MODE	28	98	1	Byte	0	1	DG1 MODE 1=Mode1; Coherent PN on I & Q 2=mode 2; Non-coherent PN on I & Q 3=mode 3; coherent PN on I, Q is not deinterleaved 4=mode 4; coherent PN on I, Q is deinterleaved
10	GCM_SR_DG2TYPE	29	99	1	Byte	ASCII Space	1	DG2 Mode Not currently used (EOS)
10	GCM_SR_FREQ	13	51	10	Byte	02287XX XXX	1	Spacecraft Transmit Frequency LSD=10HZ
10	GCM_SR_FREQ_S	26	87	1	Byte	ASCII spaces	1	Shuttle Transmit Frequency non-coherent
10	GCM_SR_IFORMAT	21	82	1	Byte	0	1	Data Format I Channel 0=NRZ-L 1=NRZ-M 2=NRZ-S
10	GCM_SR_IG2INVERSION	31	101	1	Byte	0	1	G2 Inversion I Channel 0=not inverted 1=inverted
10	GCM_SR_IJITTER	23	84	1	Byte	0	1	Data Bit Jitter I Channel 0=None 1=0.01% 2=0.1%
10	GCM_SR_IRATE	11	33	9	Byte	XXXXXX XXX	1	Data Rate I Channel LSD=1bps
10	GCM_SR_ISTREAM	33	103	3	Byte	00 to FF	1	Data Stream ID I Channel
10	GCM_SR_JITTR_S	25	86	1	Byte	ASCII space	1	Data Bit Jitter Shuttle
10	GCM_SR_LINK	8	29	2	Byte	00	1	Link 01=SSA1 02=SSA2
10	GCM_SR_MAXEIRP	16	63	4	Byte	0	1	Min EIRP, sign and 3 digits, LSD=0.1dBW
10	GCM_SR_MAXEIRP_S	18	71	4	Byte	ASCII spaces	1	Max EIRP Shuttle
10	GCM_SR_MINEIRP	17	67	4	Byte	0	1	Min EIRP, sign and 3 digits, LSD=0.1dBW
10	GCM_SR_MINEIRP_S	19	75	4	Byte	ASCII spaces	1	Min EIRP Shuttle
10	GCM_SR_MODE_S	30	100	1	Byte	ASCII Space	1	Shuttle Mode
10	GCM_SR_MSG_CLASS	3	9	2	Byte	04	1	Message Class User Reconfiguration
10	GCM_SR_MSG_ID	2	2	7	Byte	XXXXXX X	2	Message ID
10	GCM_SR_MSG_TYPE	1	0	2	Byte	98	1	Message Type GCMR
10	GCM_SR_PASSWD	6	22	4	Byte	test	2	Password
10	GCM_SR_POLAR	14	61	1	Byte	0	1	Polarization Normal User 0=LCP, 1=RCP
10	GCM_SR_POLAR_S	15	62	1	Byte	ASCII spaces	1	Polarization, Shuttle
10	GCM_SR_QFORMAT	22	83	1	Byte	0	1	Data Format I Channel 0=NRZ-L 1=NRZ-M 2=NRZ-S

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X=variable	Value Type	Descriptor
10	GCM_SR_QG2INVERSION	32	102	1	Byte	0	1	G2 Inversion Q Channel 0=not inverted 1=inverted
10	GCM_SR_QJITTER	24	85	1	Byte	0	1	Data Bit Jitter Q Channel 0=None 1=0.01% 2=0.1%
10	GCM_SR_QRATE	12	42	9	Byte	XXXXXX XXX	1	Data Rate Q Channel LSD=1bps
10	GCM_SR_QSTREAM	34	106	3	Byte	00 to FF	1	Data Stream ID Q Channel
10	GCM_SR_RATIO	20	79	3	Byte	0	1	IQ Power Ratio, sign and 2 digits, LSD=0.1dB
10	GCM_SR_STREAM_S	35	109	3	Byte	ASCII Spaces	1	Data Stream ID Shuttle
10	GCM_SR_SUPIDEN	4	11	7	Byte	A1873XX	2	SUPIDEN
10	GCM_SR_SUPPORT	9	31	1	Byte	1	1	Service Support Type 1=Return
10	GCM_SR_TDRS	7	26	3	Byte	AAA	2	TDRS Designator, Three Letter Alphanumeric
10	GCM_SR_USER_ID	5	18	4	Byte	AM1	2	Requester ID
11	GCM_KR_1FORMAT_S	30	107	1	Byte	ASCII Space	1	Format Channel 1
11	GCM_KR_1JITTER_S	31	108	1	Byte	ASCII Space	1	Jitter Channel 1
11	GCM_KR_2FORMAT_S	32	109	1	Byte	ASCII Space	1	Format Channel 2
11	GCM_KR_2JITTER_S	33	110	1	Byte	ASCII Space	1	Jitter Channel 2
11	GCM_KR_2RATE_S	34	111	9	Byte	ASCII Spaces	1	Data Rate Channel 2
11	GCM_KR_3FORMAT_S	35	120	1	Byte	ASCII Space	1	Format Channel 3
11	GCM_KR_3JITTER_S	36	121	1	Byte	ASCII Space	1	Jitter Channel 3
11	GCM_KR_3RATE_S	37	122	9	Byte	ASCII Spaces	1	Rate Channel 3
11	GCM_KR_AUTOTRACK	19	78	8	Byte	0	1	Autotrack Enable 00000001=Enable
11	GCM_KR_DATAGROUP	26	103	1	Byte	0	1	Data Group (DG) 1=DG1 2=DG2
11	GCM_KR_DG1MODE	27	104	1	Byte	0	1	DG1 MODE 1=Mode1; Coherent PN on I & Q 2=mode 2; Non-coherent PN on I & Q 3=mode 3; coherent PN on I, Q is not deinterleaved 4=mode 4; coherent PN on I, Q is deinterleaved
11	GCM_KR_DG2TYPE	28	105	1	Byte	0	1	DG2 MODE 1=Coherent 2=Noncoherent
11	GCM_KR_FREQ	12	50	10	Byte	15003XX XXX	1	Spacecraft Transmit Frequency
11	GCM_KR_FREQ_S	25	93	10	Byte	ASCII Spaces	1	Shuttle Transmit Frequency

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X=variable	Value Type	Descriptor
11	GCM_KR_IFORMAT	21	89	1	Byte	0	1	Data Format I Channel 0=NRZ-L 1=NRZ-M 2=NRZ-S 3=Bi ϕ -L 4=Bi ϕ -M 5=Bi ϕ -S
11	GCM_KR_IG2INVERSION	38	131	1	Byte	0	1	G2 Inversion I Channel 0=not inverted 1=inverted
11	GCM_KR_IJITTER	23	91	1	Byte	0	1	Data Bit Jitter I Channel 0=None 1=0.01% 2=0.1%
11	GCM_KR_IRATE	10	32	9	Byte	XXXXXX XXX	1	Data Rate I Channel LSD=1bps
11	GCM_KR_ISTREAM	40	133	3	Byte	0	00 to FF	Data Stream ID I Channel
11	GCM_KR_LINK	8	29	2	Byte	01	1	Link 03=KSA1 04=KSA2
11	GCM_KR_MAXEIRP	15	62	4	Byte	0	1	Max EIRP Normal User, sign and 3 digits, LSD=0.1dBW
11	GCM_KR_MAXEIRP_S	17	70	4	Byte	ASCII Spaces	1	Max EIRP Shuttle
11	GCM_KR_MINEIRP	16	66	4	Byte	0	1	Min EIRP Normal User, sign and 3 digits, LSD=0.1dBW
11	GCM_KR_MINEIRP_S	18	74	4	Byte	ASCII Spaces	1	Min EIRP Shuttle
11	GCM_KR_MODE_S	29	106	1	Byte	ASCII Space	1	Shuttle Mode
11	GCM_KR_MSG_CLASS	3	9	2	Byte	04	1	Message Class User Reconfiguration
11	GCM_KR_MSG_ID	2	2	7	Byte	XXXXXX X	2	Message ID
11	GCM_KR_MSG_TYPE	1	0	2	Byte	98	1	Message Type GCMR
11	GCM_KR_PASSWD	6	22	4	Byte	test	2	Password
11	GCM_KR_POLAR	13	60	1	Byte	0	1	Polarization Normal User 0=LCP, 1=RCP
11	GCM_KR_POLAR_S	14	61	1	Byte	ASCII Space	1	Polarization Shuttle
11	GCM_KR_QFORMAT	22	90	1	Byte	0	1	Data Format Q Channel 0=NRZ-L 1=NRZ-M 2=NRZ-S 3=Bi ϕ -L 4=Bi ϕ -M 5=Bi ϕ -S
11	GCM_KR_QG2INVERSION	39	132	1	Byte	0	1	G2 Inversion Q Channel 0=not inverted 1=inverted
11	GCM_KR_QJITTER	24	92	1	Byte	0	1	Data Bit Jitter Q Channel 0=None 1=0.01% 2=0.1%
11	GCM_KR_QRATE	11	41	9	Byte	XXXXXX XXX	1	Data Rate Q Channel LSD=1bps
11	GCM_KR_QSTREAM	41	136	3	Byte	0	00 to FF	Data Stream ID Q Channel
11	GCM_KR_RATIO	20	86	3	Byte	0	1	IQ Channel Power Ratio, sign and 2 digits, LSD=0.1dB

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X=variable	Value Type	Descriptor
11	GCM_KR_STREAM1_S	42	139	3	Byte	ASCII Spaces	1	Data Stream ID Shuttle
11	GCM_KR_STREAM2_S	43	142	3	Byte	ASCII Spaces	1	Shuttle Data Stream ID Channel 2
11	GCM_KR_STREAM3_S	44	145	3	Byte	ASCII Spaces	1	Shuttle Data Stream ID Channel 3
11	GCM_KR_SUBCARRIER	45	148	1	Byte	ASCII Space	1	Shuttle 1.024 MHz SUBCARRIER_S
11	GCM_KR_SUPIDEN	4	11	7	Byte	A1873XX	2	SUPIDEN
11	GCM_KR_SUPPORT	9	31	1	Byte	0	1	Service Support Type 1=Return
11	GCM_KR_TDRS	7	26	3	Byte	AAA	2	TDRS Designator, Three Letter Alphanumeric
11	GCM_KR_USER_ID	5	18	4	Byte	AM1	2	Requester ID
12	GCM_DC_INHIBIT	9	31	1	Byte	0	1	Inhibit Code 0=Other than shuttle
12	GCM_DC_LINK	8	29	2	Byte	00	1	Link 00=MA 01=SSA1 02=SSA2 03=KSA1 04=KSA2
12	GCM_DC_MSG_CLASS	3	9	2	Byte	08	1	Message Class Doppler Compensation inhibit
12	GCM_DC_MSG_ID	2	2	7	Byte	XXXXXX X	2	Message ID
12	GCM_DC_MSG_TYPE	1	0	2	Byte	98	1	Message Type GCMR
12	GCM_DC_PASSWD	6	22	4	Byte	test	2	Password
12	GCM_DC_SUPIDEN	4	11	7	Byte	A1873XX	2	SUPIDEN
12	GCM_DC_TDRS	7	26	3	Byte	AAA	2	TDRS Designator, Three Letter Alphanumeric
12	GCM_DC_USER_ID	5	18	4	Byte	AM1	2	Requester ID
13	GCM_GD_FXD_PAT	7	27	2	Byte	00	2	Fixed Pattern
13	GCM_GD_MSG_CLASS	3	9	2	Byte	02	1	Message Class
13	GCM_GD_MSG_ID	2	2	7	Byte	XXXXXX X	2	Message ID
13	GCM_GD_MSG_STAT	8	29	1	Byte	00	1	Message Status 1=WSC ACK 2= WSC No ACK
13	GCM_GD_MSG_TYPE	1	0	2	Byte	98	1	Message Type GCMR
13	GCM_GD_REF_CLS	6	25	2	Byte	00	2	Ref Message Class
13	GCM_GD_REF_ID	5	18	7	Byte	0000000	2	Reference ID, Message ID from GCMR being reported
13	GCM_GD_SUPIDEN	4	11	7	Byte	A1873XX	2	SUPIDEN
13	GCM_GD_TIME	9	30	11	Byte	YYDDD HHMMS S	1	Time
14	GCM_GS_ERR_ADDR	9	31	3	Byte	000	1	First byte of parameter causing invalid parameter error (code 21).
14	GCM_GS_MSG_CLASS	3	9	2	Byte	01	1	Message Class GCM Status Message
14	GCM_GS_MSG_ID	2	2	7	Byte	XXXXXX X	2	Message ID
14	GCM_GS_MSG_IND	7	27	2	Byte	00	2	00= from NCC
14	GCM_GS_MSG_TYPE	1	0	2	Byte	98	1	Message Type GCMR
14	GCM_GS_REF_CLS	6	25	2	Byte	00	2	Ref Message Class
14	GCM_GS_REF_ID	5	18	7	Byte	0000000	2	Reference ID, Message ID from GCMR being reported
14	GCM_GS_ST_CODE	8	29	2	Byte	00	1	Accept Reject Code

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X= variable	Value Type	Descriptor
14	GCM_GS_SUPIDEN	4	11	7	Byte	A1873XX	2	SUPIDEN
15	GCM_CT_MSG_CLASS	3	9	2	Byte	03	1	Message Class Communications Test Message
15	GCM_CT_MSG_ID	2	2	7	Byte	XXXXXX X	2	Message ID
15	GCM_CT_MSG_TYPE	1	0	2	Byte	91	1	Message Type ODM
15	GCM_CT_SUPIDEN	4	11	7	Byte	A1873XX	2	SUPIDEN
16	GCM_ER_CODE0	8	30	0	Byte	0	1	Accepted
16	GCM_ER_CODE1	8	30	0	Byte	1	1	WSC Error, Syntax Error
16	GCM_ER_CODE10	8	30	0	Byte	10	1	WSC Error, No Null Vector Assigned
16	GCM_ER_CODE11	8	30	0	Byte	11	1	WSC Error, Equip Conflict
16	GCM_ER_CODE12	8	30	0	Byte	12	1	WSC Error, Required Corresponding Forward Service Not In Operation
16	GCM_ER_CODE13	8	30	0	Byte	13	1	WSC Error, Connectivity Table Error
16	GCM_ER_CODE14	8	30	0	Byte	14	1	WSC Error, No Response Received From WSC
16	GCM_ER_CODE15	8	30	0	Byte	15	1	Not Used
16	GCM_ER_CODE16	8	30	0	Byte	16	1	Not Used
16	GCM_ER_CODE17	8	30	0	Byte	17	1	Not Used
16	GCM_ER_CODE18	8	30	0	Byte	18	1	Not Used
16	GCM_ER_CODE19	8	30	0	Byte	19	1	Not Used
16	GCM_ER_CODE2	8	30	0	Byte	2	1	WSC Error, SHO ID Not Found
16	GCM_ER_CODE20	8	30	0	Byte	20	1	Not Used
16	GCM_ER_CODE21	8	30	0	Byte	21	1	NCC Error, Invalid Parameter In MOC Request
16	GCM_ER_CODE22	8	30	0	Byte	22	1	NCC Error, SUPIDEN Conflicts With Scheduled SUPIDEN
16	GCM_ER_CODE23	8	30	0	Byte	23	1	NCC Error, Service Is Not Scheduled
16	GCM_ER_CODE24	8	30	0	Byte	24	1	NCC Error, Data Rate Exceeds Allowable Rate
16	GCM_ER_CODE25	8	30	0	Byte	25	1	NCC Error, MOC Not Authorized For This S/C
16	GCM_ER_CODE26	8	30	0	Byte	26	1	NCC Error, I/F Channel Not Available
16	GCM_ER_CODE27	8	30	0	Byte	27	1	NCC Error, Not Used
16	GCM_ER_CODE28	8	30	0	Byte	28	1	NCC Error, GCM Inappropriate To Service Type Or Configuration
16	GCM_ER_CODE29	8	30	0	Byte	29	1	NCC Error, Doppler Compensation Inhibit Inappropriate For Configuration
16	GCM_ER_CODE3	8	30	0	Byte	3	1	WSC Error, Specified Service Not Found
16	GCM_ER_CODE30	8	30	0	Byte	30	1	NCC Error, WSC Is Down
16	GCM_ER_CODE31	8	30	0	Byte	31	1	NCC Error, Pending Request For Same Service
16	GCM_ER_CODE4	8	30	0	Byte	4	1	WSC Error, Specified Service Is Not Active
16	GCM_ER_CODE5	8	30	0	Byte	5	1	WSC Error, Parameter Out Of Range
16	GCM_ER_CODE6	8	30	0	Byte	6	1	WSC Error, Incoming Queues Full
16	GCM_ER_CODE7	8	30	0	Byte	7	1	WSC Error, Reserved

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X= variable	Value Type	Descriptor
16	GCM_ER_CODE8	8	30	0	Byte	8	1	WSC Error, MOC Request Not Applicable For Service Designated
16	GCM_ER_CODE9	8	30	0	Byte	9	1	WSC Error, invalid MA Null Assignment
17	CDA_DestinationID	4	3	1	Byte	4	1	Destination ID EOC=4
17	CDA_FillSpare1	2	1	1	Byte	0	1	Spare
17	CDA_FillSpare2	5	4	1	Byte	0	1	Spare
17	CDA_FillSpare3	11	19	4	Byte	0	1	Spare
17	CDA_GrndMsgHdrBlk	1	0	1	Byte		1	Message Type 0-127 =OPS, 128-255 =Test, See EDOS ICD Table 5.1.2.1-2
17	CDA_MsgGeneration	6	5	7	Byte	XXXXXX X	1	Message Generation Time In GMT, In NASA PB5 Format
17	CDA_MsgLength	10	17	2	Byte	24 to 65535	1	Number Of Bytes In Message,
17	CDA_MsgSeqNum	8	13	2	Byte	0 to 65535	1	Message Counter
17	CDA_SourceID	3	2	1	Byte	1	1	Source Identification EDOS= 1
17	CDA_SpcrtfID	7	11	2	Byte	0	1	Mission ID See EDOS ICD Table 5.1.3-2
17	CDA_VersionNum	9	15	2	Byte	0	1	EDOS Software Version
18	CDA_CcsdsPthStatBlk	4	0	1	Bit	0	1	EDOS CCSDS Path Service Status Block Content Indicator, 0= Data Not Present
18	CDA_CcsdsVCDUStatBlk	3	0	1	Bit	0	1	EDOS CCSDS VCDU Service Status Block Content Indicator, 0= Data Not Present
18	CDA_FillSpare10	9	1	9	Byte	0	1	Spare
18	CDA_FillSpare13	12	32	8	Byte	0	1	Spare
18	CDA_FillSpare7	6	0	1	Bit	0	1	Spare
18	CDA_FillSpare8	7	0	1	Bit	0	1	Spare
18	CDA_FillSpare9	8	0	1	Bit	0	1	Spare
18	CDA_FwdLkStatBlk	2	0	1	Bit	0	1	EDOS Forward Link Status Block, 0= Data Not Present
18	CDA_GrndCommStatBlk	5	0	1	Bit	0	1	Ground Communications Status Block Content Indicator, 0= Data Not Present
18	CDA_RtnLkPhyChanBlk	1	0	1	Bit	0	1	EDOS Return Link Status Block Indicator, 0= Data Not Present
18	CDA_SCSID	11	12	20	Byte	XXXXXX XXXX	2	SCS ID, See EDOS ICD Table 5.4.5-1
18	CDA_SeqCntSCS	10	10	2	Byte	0 to 65535	1	Coda Sequence Count
19	CDA_CntCADURec	11	20	4	Byte	0	1	CADUs Received Count, Values From 0 To 4294967295
19	CDA_CntCADURec2	49	0	4	Byte	0	1	CADUs Received Count, Values From 0 To 4294967295
19	CDA_CntCADURec3	88	0	4	Byte	0	1	CADUs Received Count, Values From 0 To 4294967295
19	CDA_CntCADURec4	123	0	4	Byte	0	1	CADUs Received Count, Values From 0 To 4294967295
19	CDA_CntCADURec5	161	0	4	Byte	0	1	CADUs Received Count, Values From 0 To 4294967295

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X= variable	Value Type	Descriptor
19	CDA_CntCADURec6	199	0	4	Byte	0	1	CADUs Received Count, Values From 0 To 4294967295
19	CDA_CntFlywCADU	12	24	4	Byte	0	1	CADUs Flywheel Count, Locked But Sync Pattern Not Detected, Values From 0 To 4294967295
19	CDA_CntFlywCADU2	50	0	4	Byte	0	1	CADUs Flywheel Count, Locked But Sync Pattern Not Detected, Values From 0 To 4294967295
19	CDA_CntFlywCADU3	89	0	4	Byte	0	1	CADUs Flywheel Count, Locked But Sync Pattern Not Detected, Values From 0 To 4294967295
19	CDA_CntFlywCADU4	124	0	4	Byte	0	1	CADUs Flywheel Count, Locked But Sync Pattern Not Detected, Values From 0 To 4294967295
19	CDA_CntFlywCADU5	162	0	4	Byte	0	1	CADUs Flywheel Count, Locked But Sync Pattern Not Detected, Values From 0 To 4294967295
19	CDA_CntFlywCADU6	200	0	4	Byte	0	1	CADUs Flywheel Count, Locked But Sync Pattern Not Detected, Values From 0 To 4294967295
19	CDA_CntFrmSynErr	10	16	4	Byte	X	1	Frame Sync Pattern Error Count, Values From 0 To 4294967295
19	CDA_CntFrmSynErr2	48	0	4	Byte	0	1	Frame Sync Pattern Error Count, Values From 0 To 4294967295
19	CDA_CntFrmSynErr3	87	0	4	Byte	0	1	Frame Sync Pattern Error Count, Values From 0 To 4294967295
19	CDA_CntFrmSynErr4	122	0	4	Byte	0	1	Frame Sync Pattern Error Count, Values From 0 To 4294967295
19	CDA_CntFrmSynErr5	160	0	4	Byte	0	1	Frame Sync Pattern Error Count, Values From 0 To 4294967295
19	CDA_CntFrmSynErr6	198	0	4	Byte	0	1	Frame Sync Pattern Error Count, Values From 0 To 4294967295
19	CDA_CntFrmSynLos	13	28	4	Byte	0	1	Sync Loss Count, Transition Count From Lock Mode To Search Mode, Values From 0 To 4294967295
19	CDA_CntFrmSynLos2	51	0	4	Byte	0	1	Sync Loss Count, Transition Count From Lock Mode To Search Mode, Values From 0 To 4294967295
19	CDA_CntFrmSynLos3	90	0	4	Byte	0	1	Sync Loss Count, Transition Count From Lock Mode To Search Mode, Values From 0 To 4294967295
19	CDA_CntFrmSynLos4	125	0	4	Byte	0	1	Sync Loss Count, Transition Count From Lock Mode To Search Mode, Values From 0 To 4294967295

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X= variable	Value Type	Descriptor
19	CDA_CntFrmSynLos5	163	0	4	Byte	0	1	Sync Loss Count, Transition Count From Lock Mode To Search Mode, Values From 0 To 4294967295
19	CDA_CntFrmSynLos6	201	0	4	Byte	0	1	Sync Loss Count, Transition Count From Lock Mode To Search Mode, Values From 0 To 4294967295
19	CDA_CntSymCorVCDU	22	0	4	Byte	X	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntSymCorVCDU02	20	47	6	Bit	1	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntSymCorVCDU03	23	0	8	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntSymCorVCDU04	38	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntSymCorVCDU21	60	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntSymCorVCDU22	65	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntSymCorVCDU23	71	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntSymCorVCDU24	77	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntSymCorVCDU31	99	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntSymCorVCDU32	103	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntSymCorVCDU33	109	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntSymCorVCDU34	112	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntSymCorVCDU41	135	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntSymCorVCDU42	141	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntSymCorVCDU43	147	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntSymCorVCDU44	150	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntSymCorVCDU51	173	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntSymCorVCDU52	179	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntSymCorVCDU53	185	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X= variable	Value Type	Descriptor
19	CDA_CntSymCorVCDU54	188	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntSymCorVCDU61	211	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntSymCorVCDU62	217	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntSymCorVCDU63	220	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntSymCorVCDU64	228	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntUncorVCDU	14	32	4	Byte	0	1	Uncorrectable VCDU Count, Values From 0 To 4294967295
19	CDA_CntUncorVCDU2	52	0	4	Byte	0	1	Uncorrectable VCDU Count, Values From 0 To 4294967295
19	CDA_CntUncorVCDU3	91	0	4	Byte	0	1	Uncorrectable VCDU Count, Values From 0 To 4294967295
19	CDA_CntUncorVCDU4	126	0	4	Byte	0	1	Uncorrectable VCDU Count, Values From 0 To 4294967295
19	CDA_CntUncorVCDU5	164	0	4	Byte	0	1	Uncorrectable VCDU Count, Values From 0 To 4294967295
19	CDA_CntUncorVCDU6	202	0	4	Byte	0	1	Uncorrectable VCDU Count, Values From 0 To 4294967295
19	CDA_CntVCDUByID	21	48	4	Byte	X	1	Total Good VCDUs, Total No Errors Plus Total Corrected, Values From 0 To 4294967295
19	CDA_CntVCDUByID02	19	46	10	Bit	0	1	Total Good VCDUs, Total No Errors Plus Total Corrected, Values From 0 To 4294967295
19	CDA_CntVCDUByID03	22	0	4	Byte	X	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntVCDUByID04	37	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntVCDUByID21	59	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntVCDUByID22	64	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntVCDUByID23	70	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntVCDUByID24	76	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntVCDUByID31	98	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntVCDUByID32	102	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntVCDUByID33	108	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X= variable	Value Type	Descriptor
19	CDA_CntVCDUByID34	111	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntVCDUByID41	134	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntVCDUByID42	140	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntVCDUByID43	146	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntVCDUByID44	149	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntVCDUByID51	172	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntVCDUByID52	178	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntVCDUByID53	184	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntVCDUByID54	187	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntVCDUByID61	210	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntVCDUByID62	216	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295 V
19	CDA_CntVCDUByID63	219	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntVCDUByID64	227	0	4	Byte	0	1	Total Corrected VCDUs, Values From 0 To 4294967295
19	CDA_CntVCDUCRCErr	15	36	4	Byte	0	1	CRC Error Count, Values From 0 To 4294967295
19	CDA_CntVCDUCRCErr2	53	0	4	Byte	0	1	CRC Error Count, Values From 0 To 4294967295
19	CDA_CntVCDUCRCErr3	92	0	4	Byte	0	1	CRC Error Count, Values From 0 To 4294967295
19	CDA_CntVCDUCRCErr4	127	0	4	Byte	0	1	CRC Error Count, Values From 0 To 4294967295
19	CDA_CntVCDUCRCErr5	165	0	4	Byte	0	1	CRC Error Count, Values From 0 To 4294967295
19	CDA_CntVCDUCRCErr6	203	0	4	Byte	0	1	CRC Error Count, Values From 0 To 4294967295
19	CDA_EDOSPhysPortID	4	12	1	Byte	0	1	EDOS Return Link Physical Port ID
19	CDA_EDOSPhysPortID2	42	0	8	Byte	0	1	EDOS Return Link Physical Port ID
19	CDA_EDOSPhysPortID3	81	0	8	Byte	0	1	EDOS Return Link Physical Port ID
19	CDA_EDOSPhysPortID4	116	0	8	Byte	0	1	EDOS Return Link Physical Port ID
19	CDA_EDOSPhysPortID5	154	0	8	Byte	0	1	EDOS Return Link Physical Port ID
19	CDA_EDOSPhysPortID6	192	0	8	Byte	0	1	EDOS Return Link Physical Port ID
19	CDA_EGTPhysPortID	3	4	8	Byte	0	2	Station Or WSC Return Link Physical Port ID
19	CDA_EGTPhysPortID2	41	0	8	Byte	0	2	Station Or WSC Return Link Physical Port ID

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X=variable	Value Type	Descriptor
19	CDA_EGTPhysPortID3	80	0	8	Byte	0	2	Station Or WSC Return Link Physical Port ID
19	CDA_EGTPhysPortID4	115	0	8	Byte	0	2	Station Or WSC Return Link Physical Port ID
19	CDA_EGTPhysPortID5	153	0	8	Byte	0	2	Station Or WSC Return Link Physical Port ID
19	CDA_EGTPhysPortID6	191	0	8	Byte	0	2	Station Or WSC Return Link Physical Port ID
19	CDA_FillSpare	17	41	3	Byte	0	1	Spare
19	CDA_FillSpare14	2	1	3	Byte	0	1	Spare
19	CDA_FillSpare15	5	13	4	BIT	0	1	Spare
19	CDA_FillSpare152	43	0	4	Byte	0	1	Spare
19	CDA_FillSpare153	82	0	4	Byte	0	1	Spare
19	CDA_FillSpare154	117	0	4	Byte	0	1	Spare
19	CDA_FillSpare155	155	0	4	Byte	0	1	Spare
19	CDA_FillSpare156	193	0	4	Byte	0	1	Spare
19	CDA_FillSpare16	9	14	2	Byte	0	0	Spare
19	CDA_FillSpare163	86	0	16	Byte	0	1	Spare
19	CDA_FillSpare164	121	0	16	Byte	0	1	Spare
19	CDA_FillSpare165	159	0	16	Byte	0	1	Spare
19	CDA_FillSpare166	197	0	16	Byte	0	1	Spare
19	CDA_FillSpare18	18	44	2	Byte	0	1	Spare
19	CDA_FillSpare182	47	0	16	Byte	0	1	Spare
19	CDA_FillSpare1821	56	0	16	Byte	0	1	Spare
19	CDA_FillSpare1831	95	0	16	Byte	0	1	Spare
19	CDA_FillSpare1841	131	0	16	Byte	0	1	Spare
19	CDA_FillSpare1851	169	0	16	Byte	0	1	Spare
19	CDA_FillSpare1861	207	0	16	Byte	0	1	Spare
19	CDA_FillSpare19	19	46	10	Bit	0	1	Spare
19	CDA_FillSpare1921	57	0	10	Byte	0	1	Spare
19	CDA_FillSpare1931	96	0	10	Byte	0	1	Spare
19	CDA_FillSpare1941	132	0	10	Byte	0	1	Spare
19	CDA_FillSpare1951	170	0	10	Byte	0	1	Spare
19	CDA_FillSpare1961	208	0	10	Byte	0	1	Spare
19	CDA_FillSpare20	23	0	8	Byte	0	1	Spare
19	CDA_FillSpare2002	21	48	4	Byte	X	1	Spare
19	CDA_FillSpare2003	34	0	8	Byte	0	1	Spare
19	CDA_FillSpare2004	39	0	8	Byte	0	1	Spare
19	CDA_FillSpare2021	61	0	8	Byte	0	1	Spare
19	CDA_FillSpare2022	66	0	8	Byte	0	1	Spare
19	CDA_FillSpare2023	72	0	8	Byte	0	1	Spare
19	CDA_FillSpare2024	78	0	8	Byte	0	1	Spare
19	CDA_FillSpare2031	100	0	8	Byte	0	1	Spare
19	CDA_FillSpare2032	104	0	8	Byte	0	1	Spare
19	CDA_FillSpare2033	110	0	8	Byte	0	1	Spare
19	CDA_FillSpare2034	113	0	8	Byte	0	1	Spare
19	CDA_FillSpare2041	136	0	8	Byte	0	1	Spare
19	CDA_FillSpare2042	142	0	8	Byte	0	1	Spare
19	CDA_FillSpare2043	148	0	8	Byte	0	1	Spare
19	CDA_FillSpare2044	151	0	8	Byte	0	1	Spare
19	CDA_FillSpare2051	174	0	8	Byte	0	1	Spare
19	CDA_FillSpare2052	180	0	8	Byte	0	1	Spare
19	CDA_FillSpare2053	186	0	8	Byte	0	1	Spare
19	CDA_FillSpare2054	189	0	8	Byte	0	1	Spare
19	CDA_FillSpare2061	212	0	8	Byte	0	1	Spare
19	CDA_FillSpare2062	218	0	8	Byte	0	1	Spare
19	CDA_FillSpare2063	221	0	8	Byte	0	1	Spare

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X=variable	Value Type	Descriptor
19	CDA_FillSpare2064	229	0	8	Byte	0	1	Spare
19	CDA_FillSpare21	230	0	8	Byte	0	1	Spare
19	CDA_FillSpareB	40	0	8	Byte	0	1	Spare
19	CDA_FillSpareB2	55	0	24	Byte	0	1	Spare
19	CDA_FillSpareC	79	0	8	Byte	0	1	Spare
19	CDA_FillSpareC2	94	0	24	Byte	0	1	Spare
19	CDA_FillSpareD	114	0	8	Byte	0	1	Spare
19	CDA_FillSpareD2	129	0	24	Byte	0	1	Spare
19	CDA_FillSpareE	152	0	8	Byte	0	1	Spare
19	CDA_FillSpareE2	167	0	24	Byte	0	1	Spare
19	CDA_FillSpareF	190	0	8	Byte	0	1	Spare
19	CDA_FillSpareF2	205	0	24	Byte	0	1	Spare
19	CDA_FrmSynStatMode	8	13	2	Bit	0	1	Frame Sync Mode, 1= Flywheel 2= Search 3 =Check
19	CDA_FrmSynStatMode3	85	0	2	Byte	0	1	Frame Sync Mode, 1= Flywheel 2= Search 3 =Check
19	CDA_FrmSynStatMode4	120	0	2	Byte	0	1	Frame Sync Mode, 1= Flywheel 2= Search 3 =Check
19	CDA_FrmSynStatMode5	158	0	2	Byte	0	1	Frame Sync Mode, 1= Flywheel 2= Search 3 =Check
19	CDA_FrmSynStatMode6	196	0	2	Byte	0	1	Frame Sync Mode, 1= Flywheel 2= Search 3 =Check
19	CDA_FrmSynStatOrd3	84	0	1	Byte	0	1	CADUs Bits Received Forward Or Reversed Order Forward Order=0
19	CDA_FrmSynStatOrd4	119	0	1	Byte	0	1	CADUs Bits Received Forward Or Reversed Order Forward Order=0
19	CDA_FrmSynStatOrd5	157	0	1	Byte	0	1	CADUs Bits Received Forward Or Reversed Order Forward Order=0
19	CDA_FrmSynStatOrd6	195	0	1	Byte	0	1	CADUs Bits Received Forward Or Reversed Order Forward Order=0
19	CDA_FrmSynStatPol3	83	0	1	Byte	0	1	Frame Sync Status Polarity 0= Normal
19	CDA_FrmSynStatPol4	118	0	1	Byte	0	1	Frame Sync Status Polarity 0= Normal
19	CDA_FrmSynStatPol5	156	0	1	Byte	0	1	Frame Sync Status Polarity 0= Normal
19	CDA_FrmSynStatPol6	194	0	1	Byte	0	1	Frame Sync Status Polarity 0= Normal
19	CDA_FrmSynStatusMode	46	0	2	Byte	0	1	Frame Sync Mode, 1= Flywheel 2= Search 3 =Check
19	CDA_FrmSynStatusOrd	7	13	1	BIT	0	1	CADUs Bits Received Forward Or Reversed Order Forward Order=0
19	CDA_FrmSynStatusOrd2	45	0	1	Byte	0	1	CADUs Bits Received Forward Or Reversed Order Forward Order=0
19	CDA_FrmSynStatusPol	6	13	1	BIT	0	1	Frame Sync Status Polarity 0= Normal
19	CDA_FrmSynStatusPol2	44	0	1	Byte	0	1	Frame Sync Status Polarity 0= Normal

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X= variable	Value Type	Descriptor
19	CDA_NumRtnLkPLPP	1	0	1	Byte	0-24	1	Number Of Return Link Physical Ports Present In This Message
19	CDA_NumVCID1	16	40	1	Byte	0	1	VclD1
19	CDA_NumVCID22	54	0	8	Byte	0	1	VclD22
19	CDA_NumVCID23	93	0	8	Byte	0	1	VclD23
19	CDA_NumVCID24	128	0	8	Byte	0	1	VclD25
19	CDA_NumVCID25	166	0	8	Byte	0	1	VclD25
19	CDA_NumVCID26	204	0	8	Byte	0	1	VclD26
19	CDA_VCID1	20	47	6	Bit	1	1	Virtual Channel ID 1
19	CDA_VCID121	58	0	6	Byte	0	1	Virtual Channel ID
19	CDA_VCID131	97	0	6	Byte	0	1	Virtual Channel ID
19	CDA_VCID141	133	0	6	Byte	0	1	Virtual Channel ID
19	CDA_VCID151	171	0	6	Byte	0	1	Virtual Channel ID
19	CDA_VCID161	209	0	6	Byte	0	1	Virtual Channel ID
20	CDA_FillSpare22	5	0	3	Byte	0	1	Spare
20	CDA_FillSpare23	8	0	3	Byte	0	1	Spare
20	CDA_FillSpare232	13	0	3	Byte	0	1	Spare
20	CDA_FillSpare233	18	0	3	Byte	0	1	Spare
20	CDA_FillSpare234	23	0	3	Byte	0	1	Spare
20	CDA_FillSpare24	10	0	8	Byte	0	1	Spare
20	CDA_FillSpare242	15	0	8	Byte	0	1	Spare
20	CDA_FillSpare243	20	0	8	Byte	0	1	Spare
20	CDA_FillSpare244	25	0	8	Byte	0	1	Spare
20	CDA_FillSpare25	26	0	8	Byte	0	1	Spare
20	CDA_FLCntCommBlk	9	0	8	Byte	0	1	Command Data Blocks Transferred
20	CDA_FLCntCommBlk2	14	0	8	Byte	0	1	Command Data Blocks Transferred
20	CDA_FLCntCommBlk3	19	0	8	Byte	0	1	Command Data Blocks Transferred
20	CDA_FLCntCommBlk4	24	0	8	Byte	0	1	Command Data Blocks Transferred
20	CDA_FLEDOSSPhysPtID	7	0	1	Byte	0	1	EDOS Physical Port ID
20	CDA_FLEDOSSPhysPtID2	12	0	8	Byte	0	1	EDOS Physical Port ID
20	CDA_FLEDOSSPhysPtID3	17	0	8	Byte	0	1	EDOS Physical Port ID
20	CDA_FLEDOSSPhysPtID4	22	0	1	Byte	0	1	EDOS Physical Port ID
20	CDA_FLEGTPPhysPtID	6	0	8	Byte	0	2	Station Or Ground Terminal Physical Port ID
20	CDA_FLEGTPPhysPtID2	11	0	8	Byte	0	2	Station Or Ground Terminal Physical Port ID
20	CDA_FLEGTPPhysPtID4	21	0	8	Byte	0	2	Station Or Ground Terminal Physical Port ID
20	CDA_FLGTPPhysPtID3	16	0	8	Byte	0	2	Station Or Ground Terminal Physical Port ID
20	CDA_SCCntComDataBlk	1	0	8	Byte	0	1	Received Command Blocks
20	CDA_SCDAEDOSofGdHdr	2	0	8	Byte	0	1	Command Blocks Discarded Due To EDOS Buffer Overflow Or invalid Header
20	CDA_SCGrndMsgHdrEOC	3	0	4	Byte	0	1	Count Of Message Sequence Numbers In Ground Message Header Received Out Of Sequence
20	CDA_SCNumFLPP	4	0	1	Byte	0	1	Number Of Active Forward Link Physical Ports For this spacecraft
21	CDA_CntVCDURtLnk	7	12	4	Byte	0	1	Stored number of return link VCDU EDU for this VCID
21	CDA_CntVCDURtLnk2	13	25	4	Byte	0	1	Stored number of return link VCDU EDU for this VCID

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X=variable	Value Type	Descriptor
21	CDA_CntVCDURtLnk3	19	40	4	Byte	0	1	Stored number of return link VCDU EDU for this VCID
21	CDA_CntVCDURtLnk4	25	55	4	Byte	0	1	Stored number of return link VCDU EDU for this VCID
21	CDA_CntVCDUSeqID2	12	21	4	Byte	0	1	VCDU sequence counter discontinuities
21	CDA_CntVCDUSeqID3	18	36	4	Byte	0	1	VCDU sequence counter discontinuities
21	CDA_CntVCDUSeqID4	24	51	4	Byte	0	1	VCDU sequence counter discontinuities
21	CDA_CntVCDUSeqVCDUID	6	8	4	Byte	0	1	VCDU sequence counter discontinuities
21	CDA_FillSpare26	2	1	3	Byte	0	1	Spare
21	CDA_FillSpare27	3	4	10	Bits	0	1	Spare
21	CDA_FillSpare272	9	17	10	Bits	0	1	Spare
21	CDA_FillSpare273	15	30	10	Bits	0	1	Spare
21	CDA_FillSpare274	21	42	10	Bits	0	1	Spare
21	CDA_FillSpare28	5	6	2	Byte	0	1	Spare
21	CDA_FillSpare282	11	19	2	Byte	0	1	Spare
21	CDA_FillSpare283	17	32	2	Byte	0	1	Spare
21	CDA_FillSpare284	23	49	2	Byte	0	1	Spare
21	CDA_FillSpare29	8	16	1	Byte	0	1	Spare
21	CDA_FillSpare292	14	29	1	Byte	0	1	Spare
21	CDA_FillSpare293	20	41	1	Byte	0	1	Spare
21	CDA_FillSpare294	26	59	1	Byte	0	1	Spare
21	CDA_NumVCIDScID	1	0	1	Byte	0 to 255	1	Number of VCIDs for this spacecraft ID
21	CDA_VCID2	4	5	6	Bits	0	1	Virtual Channel ID
21	CDA_VCID21	10	18	6	Bits	0	1	Virtual Channel ID
21	CDA_VCID22	16	31	6	Bits	0	1	Virtual Channel ID
21	CDA_VCID23	22	43	6	Bits	0	1	Virtual Channel ID
22	UPD_TT_FWD_DELTA_TIM	13	39	3	Byte		1	Forward Delta Time, Binary LSB=200nsec
22	UPD_TT_FWD_PN_TD	8	24	4	Byte		2	Forward PN Time Delay Binary LSD=10 nsec
22	UPD_TT_MAR_ID	7	22	2	Byte	01	5	Mar ID 00=Not MAR 01 to 05 MAR ID
22	UPD_TT_MSG_CLASS	3	9	2	Byte	66	5	Message Class
22	UPD_TT_MSG_ID	2	2	7	Byte	XXXXXX X	2	Message ID
22	UPD_TT_MSG_TYPE	1	0	2	Byte	92	5	Message Type UPD
22	UPD_TT_PB1_TIMELAY	11	33	5	Byte		2	Binary NASA PB1 time sample
22	UPD_TT_PN_LOCK	12	38	1	Byte		5	Receive PN Lock 1= Lock
22	UPD_TT_RP_COUNT	10	32	1	Byte		1	Number of Occurrences Binary, 20 to 255
22	UPD_TT_RTN_DELTA_TIM	14	42	3	Byte		1	Return Delta Time, Binary LSB=200nsec
22	UPD_TT_RTN_PN_TD	9	28	4	Byte		2	Return PN Time Delay Binary LSD=10 nsec
22	UPD_TT_SUBTYPE	6	21	1	Byte	0	5	Service Subtype 0=MA 1=SSA1 2=SSA2 3=KSA1 4=KSA2
22	UPD_TT_SUPIDEN	4	11	7	Byte	A1873XX	2	SUPIDEN
22	UPD_TT_TDRS	5	18	3	Byte	AAA	2	TDRS Designator, Three Letter Alphanumeric
23	UPD_CT_MSG_CLASS	3	9	2	Byte	03	5	Message Class

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X=variable	Value Type	Descriptor
23	UPD_CT_MSG_ID	2	2	7	Byte	XXXXXX X	2	Message ID
23	UPD_CT_MSG_TYPE	1	0	2	Byte	91	5	Message Type
23	UPD_CT_SUPIDEN	4	11	7	Byte	A1873XX	2	SUPIDEN
24	UPD_RC_DLY_TIME	16	96	9	Byte		2	Delay Time
24	UPD_RC_FIX_PT	14	66	28	Byte		2	Fix Pt
24	UPD_RC_ISTART_DELAY	8	24	7	Byte		2	I Start
24	UPD_RC_ISTOP_DELAY	11	45	7	Byte		2	I Stop Delay
24	UPD_RC_ITD_ICHAN	17	105	7	Byte	1234567	2	Itd I Channel
24	UPD_RC_ITD_QCHAN	18	112	7	Byte	1234567	2	Itd Q Channel
24	UPD_RC_MAR_ID	7	22	2	Byte	01	5	MAR ID 00=not MA 01 to 05=MA Return link ID
24	UPD_RC_MSG_CLASS	3	9	2	Byte	62	5	Message Class
24	UPD_RC_MSG_ID	2	2	7	Byte	XXXXXX X	2	Message ID
24	UPD_RC_MSG_TYPE	1	0	2	Byte	92	5	Message Type
24	UPD_RC_QSTART_DELAY	9	31	7	Byte		2	Q Start
24	UPD_RC_QSTOP_DELAY	12	52	7	Byte		2	Q Stop Delay
24	UPD_RC_RP_COUNT	15	94	2	Byte		1	Rp Count
24	UPD_RC_SPARE	10	38	7	Byte		4	Spare
24	UPD_RC_SPARE2	13	59	7	Byte		4	Spare2
24	UPD_RC_SPARE3	19	119	7	Byte		4	Itd Spare 3
24	UPD_RC_SUBTYPE	6	21	1	Byte	0	5	Service Subtype 0=MA 1=SSA1 2=SSA2 3=KSA1 4=KSA2
24	UPD_RC_SUPIDEN	4	11	7	Byte	A1873XX	2	SUPIDEN
24	UPD_RC_TDRS	5	18	3	Byte	000	2	TDRS Designator, Three Letter Alphanumeric
25	UPD_RM_FUNCTION	7	26	1	Byte	0	5	Function 0= Enable UPDs 1=Disable UPDs
25	UPD_RM_MSG_CLASS	3	9	2	Byte	04	5	Message Class UPD Request
25	UPD_RM_MSG_ID	2	2	7	Byte	XXXXXX X	2	Message ID
25	UPD_RM_MSG_TYPE	1	0	2	Byte	92	5	Message Type
25	UPD_RM_PASSWD	6	22	4	Byte	ECT2	2	Password
25	UPD_RM_SUPIDEN	4	11	7	Byte	A1873XX	2	SUPIDEN
25	UPD_RM_USER_ID	5	18	4	Byte	EOS	2	Requester ID
26	UPD_AF_MAR_ID	7	22	2	Byte	01	5	MAR ID 00=not MA 01 to 05=MA Return link ID
26	UPD_AF_MSG_CLASS	3	9	2	Byte	63	5	Message Class Acquisition Failure Notification
26	UPD_AF_MSG_ID	2	2	7	Byte	XXXXXX X	2	Message ID
26	UPD_AF_MSG_TYPE	1	0	2	Byte	92	5	Message Type
26	UPD_AF_SUBTYPE	6	21	1	Byte	0	5	Service Subtype 0=MA 1=SSA1 2=SSA2 3=KSA1 4=KSA2
26	UPD_AF_SUPIDEN	4	11	7	Byte	A1873XX	2	SUPIDEN

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X=variable	Value Type	Descriptor
26	UPD_AF_TDRS	5	18	3	Byte	000	2	TDRS Designator, Three Letter Alphanumeric
27	UPD_UH_INDICATOR	6	20	2	Byte	00	5	From NCC=00
27	UPD_UH_MSG_CLASS	3	9	2	Byte		5	Message Class
27	UPD_UH_MSG_ID	2	2	7	Byte	XXXXXX X	2	Message ID
27	UPD_UH_MSG_TYPE	1	0	2	Byte	91	5	Message Type
27	UPD_UH_SUPIDEN	4	11	7	Byte	A1873XX	2	SUPIDEN
27	UPD_UH_VEH_ID	5	18	2	Byte	01	2	Vehicle ID, Fixed value=01
28	UPD_SH_MSG_ID	2	2	7	Byte	XXXXXX X	2	Message ID
28	UPD_SH_NUM_SRV	9	36	2	Byte	01	1	Number of SA services reported in this message
28	UPD_SH_REF_WD	11	99	1	Byte	0	5	Refresh word, Normal=0, Retransmission=1
28	UPD_SH_SPARE	3	9	1	Byte	ASCII SPACE	4	Spare
28	UPD_SH_SPARE2	10	38	61	Byte	ASCII Spaces	4	Spare
28	UPD_SH_SRV_TYPE	1	0	2	Byte	05	5	SA Service UPD Header
28	UPD_SH_TDRS	4	10	3	Byte	AAA	2	TDRS Designator, Three Letter Alphanumeric
28	UPD_SH_TDRS_A1	5	13	4	Byte	359.7	2	TDRS Orientation Yaw 0 to 360 degrees, to accuracy of 0.25 degree LSD=0.1 degree,
28	UPD_SH_TDRS_A2	6	17	4	Byte	360.0	2	TDRS Orientation Roll 0 to 360 degrees, to accuracy of 0.25 degree LSD=0.1 degree
28	UPD_SH_TDRS_A3	7	21	4	Byte	000.2	2	TDRS Orientation Pitch 0 to 360 degrees, to accuracy of 0.25 degree LSD=0.1 degree,
28	UPD_SH_TIME_TAG	8	25	11	Byte	00	2	Time Tag YYYYDDDHMMSS
29	UPD_MH_MSG_ID	2	2	7	Byte	XXXXXX X	2	Message ID
29	UPD_MH_NUM_SRV	9	36	2	Byte	01	1	Number of MA services reported in this message
29	UPD_MH_REF_WD	14	99	1	Byte	0	5	Refresh word, Normal=0, Retransmission=1
29	UPD_MH_SPARE	3	9	1	Byte	ASCII SPACE	4	Spare
29	UPD_MH_SPARE2	10	38	1	Byte	ASCII Spaces	4	Spare
29	UPD_MH_SPARE3	11	39	4	Byte	ASCII Spaces	4	Spare
29	UPD_MH_SPARE4	12	42	2	Byte	ASCII Spaces	4	Spare
29	UPD_MH_SPARE5	13	45	54	Byte	ASCII Spaces	4	Spare
29	UPD_MH_SRV_TYPE	1	0	2	Byte	06	5	MA Service UPD Header
29	UPD_MH_TDRS	4	10	3	Byte	AAA	2	TDRS Designator, Three Letter Alphanumeric
29	UPD_MH_TDRS_A1	5	13	4	Byte	359.7	2	TDRS Orientation Yaw 0 to 360 degrees, to accuracy of 0.25 degree LSD=0.1 degree,
29	UPD_MH_TDRS_A2	6	17	4	Byte	360.0	2	TDRS Orientation Roll 0 to 360 degrees, to accuracy of 0.25 degree LSD=0.1 degree

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X= variable	Value Type	Descriptor
29	UPD_MH_TDRS_A3	7	21	4	Byte	000.2	2	TDRS Orientation Pitch 0 to 360 degrees, to accuracy of 0.25 degree LSD=0.1 degree,
29	UPD_MH_TIME_TAG	8	25	11	Byte	00	2	Time Tag YYYDDDHHMMSS
30	UPD_SM_MSG_ID	2	2	7	Byte	XXXXXX X	2	Message ID
30	UPD_SM_NUM_SRV	9	36	2	Byte	01	1	Num Srv
30	UPD_SM_REF_WD	11	99	1	Byte	0	5	Refresh word, Normal=0, Retransmission=1
30	UPD_SM_SPARE	3	9	1	Byte		4	Spare
30	UPD_SM_SPARE2	10	38	61	Byte		4	Spare2
30	UPD_SM_SRV_TYPE	1	0	2	Byte	07	5	Service Type Simulated Service
30	UPD_SM_TDRS	4	10	3	Byte	AAA	2	SUPIDEN
30	UPD_SM_TDRS_A1	5	13	4	Byte	1234	2	TDRS A1
30	UPD_SM_TDRS_A2	6	17	4	Byte	1234	2	TDRS A2
30	UPD_SM_TDRS_A3	7	21	4	Byte	1234	2	TDRS A3
30	UPD_SM_TIME_TAG	8	25	11	Byte	00	2	Time Tag
31	UPD_SF_BER_S	30	67	4	Byte	ASCII Spaces	4	Shuttle frame sync word
31	UPD_SF_CFG_S	24	51	1	Byte	ASCII Space	4	Data Configuration Shuttle
31	UPD_SF_CLOCK	19	45	1	Byte	1	5	Clock Presence No=0
31	UPD_SF_CLOCK_S	26	53	1	Byte	ASCII Space	4	Clock presence shuttle
31	UPD_SF_CMD_PN	14	28	1	Byte	1	5	Command PN Modulation Yes=1
31	UPD_SF_DATA_VALIDITY	12	26	1	Byte	0	5	WSC Data Valid All Data Valid=0 Some or all data invalid=1-4. See 530-ICD-NCCDS/MOC
31	UPD_SF_DENSITY	20	46	2	Byte	50	2	Data Transition Density 00 to 99 %
31	UPD_SF_DENSITY_S	27	54	2	Byte	ASCII Spaces	4	Data Transition Density Shuttle
31	UPD_SF_DOP_COMP	15	29	1	Byte	0	5	Doppler Compensation Required, On=1 Off=0
31	UPD_SF_DOP_COMP_S	21	48	1	Byte	ASCII Space	4	Doppler Compensation Shuttle
31	UPD_SF_DRP_S	29	59	8	Byte	ASCII Spaces	4	Data dropouts shuttle
31	UPD_SF_EIRP	16	30	4	Byte	1234	2	EIRP, SIGN AND 3 DIGITS, LSD=0.1DBW
31	UPD_SF_FREQ	17	34	10	Byte	02106XX XXX	2	Radiated Frequency LSD=10Hz
31	UPD_SF_LOCK_S	28	56	3	Byte	ASCII Spaces	4	Data Lock Shuttle
31	UPD_SF_PN_MOD_S	22	49	1	Byte	ASCII Space	4	PN Modulation Shuttle
31	UPD_SF_PN_RATE_S	23	50	1	Byte	ASCII Space	4	PN Rate Shuttle
31	UPD_SF_POLAR	10	24	1	Byte	0	5	Polarization Normal User 0=LCP, 1=RCP
31	UPD_SF_POWER	18	44	1	Byte	0	5	Power Mode Normal=0 High=1
31	UPD_SF_REF_WD	32	99	1	Byte	0	5	Refresh word, Normal=0, Retransmission=1
31	UPD_SF_RF_PT_AZM	7	15	4	Byte	+123	2	Azimuth RF Beam pointing 0 to ±90 degrees, Sign plus 3 digits, LSD=0.1 degree

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X=variable	Value Type	Descriptor
31	UPD_SF_RF_PT_ELV	8	19	4	Byte	+123	2	Elevation RF Beam pointing 0 to Elevation \pm 90 degrees, Sign plus 3 digits, LSD=0.1 degree.
31	UPD_SF_SPARE	6	12	3	Byte	ASCII Spaces	4	Spare
31	UPD_SF_SPARE2	13	27	1	Byte	ASCII Space	4	Spare2
31	UPD_SF_SPARE3	31	71	28	Byte	ASCII Spaces	4	Spare3
31	UPD_SF_SPT_TYPE	1	0	1	Byte	0	5	Service Type SSA Forward
31	UPD_SF_SRV_CFG	9	23	1	Byte	1	5	Service Configuration Non Shuttle=1
31	UPD_SF_STATUS	11	25	1	Byte	0	5	Link Status Active=0 Pending=1 Acq./Reacq.=2
31	UPD_SF_SUBGROUP	5	11	1	Byte	0	5	Subgroup 0=Not Shuttle
31	UPD_SF_SUBTYPE	4	10	1	Byte	1	5	Service Subtype SSA1=1 SSA2=2
31	UPD_SF_SUPIDEN	2	1	7	Byte	A1873XX	2	SUPIDEN
31	UPD_SF_SYNC_S	25	52	1	Byte	ASCII Space	4	Frame Sync Shuttle
31	UPD_SF_VEH_IC	3	8	2	Byte	01	2	Vehicle ID, Fixed value=01
32	UPD_KF_BER_S	26	63	4	Byte	ASCII Spaces	4	Bit Error Rate Shuttle
32	UPD_KF_CLOCK	17	45	1	Byte	0	5	Clock Presence Yes=1
32	UPD_KF_CLOCK_S	22	49	1	Byte	ASCII Spaces	4	Clock Presence Shuttle
32	UPD_KF_CMD_PN	12	28	1	Byte	0	5	Command PN
32	UPD_KF_DATA_VALIDITY	11	26	1	Byte	0	5	WSC Data Valid All Data Valid=0 Some or all data invalid=1-4. See 530-ICD-NCCDS/MOC
32	UPD_KF_DENSITY	18	46	2	Byte	50	2	Data Transition Density 00 to 99%
32	UPD_KF_DENSITY_S	23	50	2	Byte	ASCII Spaces	4	Data Density Shuttle
32	UPD_KF_DOP_COMP	13	29	1	Byte	0	5	Doppler Compensation Required, On=1 Off=0
32	UPD_KF_DRP_S	25	55	8	Byte	ASCII Spaces	4	Dropout count Shuttle
32	UPD_KF_EIRP	14	30	4	Byte	1234	2	EIRP, Sign and 3 Digits, LSD=0.1dBW
32	UPD_KF_FREQ	15	34	10	Byte	13775XX XXX	2	Spacecraft Receive Frequency
32	UPD_KF_LOCK_S	24	52	3	Byte	ASCII Spaces	4	Lock % Shuttle
32	UPD_KF_POLAR	9	24	1	Byte	0	5	Polarization Normal User 0=LCP, 1=RCP
32	UPD_KF_POWER	16	44	1	Byte	0	5	Forward Power Mode Normal=0 High=1
32	UPD_KF_REF_WD	28	99	1	Byte	0	5	Refresh word, Normal=0, Retransmission=1
32	UPD_KF_RF_PT_AZM	7	15	4	Byte	+123	2	Azimuth RF Beam pointing 0 to \pm 90 degrees, Sign plus 3 digits, LSD=0.1 degree
32	UPD_KF_RF_PT_ELV	7	19	4	Byte	+123	2	Elevation RF Beam pointing 0 to \pm 90 degrees, Sign plus 3 digits, LSD=0.1 degree.
32	UPD_KF_SPARE	6	12	3	Byte	ASCII Spaces	4	Spare
32	UPD_KF_SPARE2	11b	27	1	Byte	ASCII Space	4	Spare

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X=variable	Value Type	Descriptor
32	UPD_KF_SPARE3	27	67	32	Byte	ASCII Spaces	4	Spare3
32	UPD_KF_SPT_TYPE	1	0	1	Byte	0	5	Service Type KSA Forward
32	UPD_KF_SRV_CFG	8	23	1	Byte	1	5	Service Configuration KSA Normal = 2
32	UPD_KF_STATUS	10	25	1	Byte	0	5	Link Status Active=0 Pending=1 Acq./Reacq.=2
32	UPD_KF_SUBGROUP	5	11	1	Byte	0	5	Subgroup NonShuttle=0
32	UPD_KF_SUBTYPE	4	10	1	Byte	3	5	SERVICE SUBTYPE KSA1=3 KSA2=4
32	UPD_KF_SUPIDEN	2	1	7	Byte	A1873XX	2	SUPIDEN
32	UPD_KF_SYNC_S	19	48	1	Byte	ASCII Spaces	4	Frame Sync Shuttle
32	UPD_KF_VEH_IC	3	8	2	Byte	01	2	Vehicle ID, Fixed value=01
33	UPD_S1_1_IBER	20	44	1	Byte		5	SSA1 I channel bit error rate Not valid=0 Rate $\leq 10^{-5}$ =1 Rate $\geq 10^{-5}$ =2
33	UPD_S1_1_IBER_DATA	51	91	1	Byte	0	5	SSA1 I Channel BER Status Not valid=0 BER $\geq 10^{-3}$ =1 $10^{-3} > BER \geq 10^{-4}$ =2 $10^{-4} > BER \geq 10^{-5}$ =3 $10^{-5} > BER \geq 10^{-6}$ =4 $10^{-6} > BER \geq 10^{-7}$ =5 $10^{-7} > BER \geq 10^{-8}$ =6 $10^{-8} > BER \geq 10^{-9}$ =7 BER $< 10^{-9}$ =8
33	UPD_S1_1_ILOCK	18	42	1	Byte	0	5	SSA1 I Channel Lock=1
33	UPD_S1_1_QBER	21	45	1	Byte		5	SSA1 Q channel bit error rate Not valid=0 Rate $\leq 10^{-5}$ =1 Rate $\geq 10^{-5}$ =2
33	UPD_S1_1_QBER_DATA	52	92	1	Byte	0	5	SSA1 Q Channel BER Status Not valid=0 BER $\geq 10^{-3}$ =1 $10^{-3} > BER \geq 10^{-4}$ =2 $10^{-4} > BER \geq 10^{-5}$ =3 $10^{-5} > BER \geq 10^{-6}$ =4 $10^{-6} > BER \geq 10^{-7}$ =5 $10^{-7} > BER \geq 10^{-8}$ =6 $10^{-8} > BER \geq 10^{-9}$ =7 BER $< 10^{-9}$ =8
33	UPD_S1_1_QLOCK	19	43	1	Byte	0	5	SSA1 Q Channel Lock=1
33	UPD_S1_1_RCVR	14	30	1	Byte	0	5	SSA1 Receiver lock Lock=1
33	UPD_S1_1_SIG	15	31	5	Byte	000000	2	SSA1 C/N0 LSD=0.1dB-Hz
33	UPD_S1_2_IBER	28	60	1	Byte	2	5	SSA2 I channel bit error rate Not valid=0 Rate $\leq 10^{-5}$ =1 Rate $\geq 10^{-5}$ =2

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X=variable	Value Type	Descriptor
33	UPD_S1_2_IBER_DATA	53	93	1	Byte	0	5	SSA2 I Channel BER Status Not valid=0 BER $\geq 10^{-3}$ =1 $10^{-3}>BER\geq 10^{-4}$ =2 $10^{-4}>BER\geq 10^{-5}$ =3 $10^{-5}>BER\geq 10^{-6}$ =4 $10^{-6}>BER\geq 10^{-7}$ =5 $10^{-7}>BER\geq 10^{-8}$ =6 $10^{-8}>BER\geq 10^{-9}$ =7 BER< 10^{-9} =8
33	UPD_S1_2_ILOCK	26	58	1	Byte	0	5	SSA2 I Channel Lock=1
33	UPD_S1_2_QBER	29	61	1	Byte	2	5	SSA2 Q channel bit error rate Not valid=0 Rate $\leq 10^{-5}$ =1 Rate $\geq 10^{-5}$ =2
33	UPD_S1_2_QBER_DATA	5	94	1	Byte	0	5	SSA2 Q Channel BER Status Not valid=0 BER $\geq 10^{-3}$ =1 $10^{-3}>BER\geq 10^{-4}$ =2 $10^{-4}>BER\geq 10^{-5}$ =3 $10^{-5}>BER\geq 10^{-6}$ =4 $10^{-6}>BER\geq 10^{-7}$ =5 $10^{-7}>BER\geq 10^{-8}$ =6 $10^{-8}>BER\geq 10^{-9}$ =7 BER< 10^{-9} =8
33	UPD_S1_2_QLOCK	27	59	1	Byte	0	5	SSA2 Q Channel Lock=1
33	UPD_S1_2_RCVR	22	46	1	Byte	0	5	SSA2 Receiver lock Lock=1
33	UPD_S1_2_SIG	23	47	5	Byte	0000	2	SSA2 C/N0 LSD=0.1dB-Hz
33	UPD_S1_CHN_CFG	37	71	1	Byte	1	5	Channel Configuration Same Data On Both Channels=0 Dual Data Sources=1 Single Source Alternating Channels=2
33	UPD_S1_CONFIG	42	76	1	Byte	0	5	DG1 configuration I Channel BPSK=0 Q Channel BPSK=1 Both channels (QPSK)=2
33	UPD_S1_DATA_VALIDITY	11a	26	1	Byte	0	5	WSC Data Valid All Data Valid=0 Some or all data invalid=1-4. See 530-ICD-NCCDS/MOC
33	UPD_S1_DEINT	30	62	1	Byte	0	5	Deinterleaving Selection none=0 I only=1 Q only=2 Both=3
33	UPD_S1_DOP_TRK	13	29	1	Byte	0	5	Doppler Tracking Status Inactive=0 1 Way=1 2 Way=2 Cross-Support=3
33	UPD_S1_I_CODE	38	72	1	Byte	0	5	I Channel Coding Uncoded=0 _ rate=1 _ rate G1 inverted=2
33	UPD_S1_I_DFMT	32	8	1	Byte	0	5	I data format conversion yes=1

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X=variable	Value Type	Descriptor
33	UPD_S1_I_G2INV	40	74	1	Byte	0	5	I Channel G2 inversion Not Inverted=0 Inverted=1
33	UPD_S1_L_SFMT	35	69	1	Byte	0	5	I Channel Bi ϕ conversion
33	UPD_S1_IQ_RATIO	34	66	3	Byte	0	2	IQ Channel Power Ratio, sign and 2 digits, LSD=0.1dB
33	UPD_S1_MODE	44	78	1	Byte	0	5	DG1 Mode Mode1, Coherent, Low rate both channels=1 Mode2, Non-coherent, Low rate both channels=2 Mode3, Coherent High rate on Q channel=3
33	UPD_S1_POLAR	9	24	1	Byte	0	5	Polarization Normal User 0=LCP, 1=RCP
33	UPD_S1_Q_CODE	39	73	1	Byte	0	5	Q Channel Coding Uncoded=0 _ rate=1 _ rate G1 inverted=2
33	UPD_S1_Q_DFMT	33	65	1	Byte	0	5	Q data format conversion yes=1
33	UPD_S1_Q_G2INV	41	75	1	Byte	0	5	Q Channel G2 Inversion Not Inverted=0 Inverted=1
33	UPD_S1_Q_SFMT	36	70	1	Byte	0	5	Q Channel Bi ϕ conversion
33	UPD_S1_RCVR_CFG	12	28	1	Byte	0	5	Receiver Configuration Normal=0
33	UPD_S1_RCVR_COH	45	79	1	Byte	0	5	Receiver Coherency Coherent=1
33	UPD_S1_REF_WD	58	99	1	Byte	0	5	Refresh word, Normal=0, Retransmission=1
33	UPD_S1_RF_PT_AZM	7	15	4	Byte	+123	2	Azimuth RF Beam pointing 0 to \pm 90 degrees, Sign plus 3 digits, LSD=0.1 degree
33	UPD_S1_RF_PT_ELV	7	19	4	Byte	+123	2	Elevation RF Beam pointing 0 to \pm 90 degrees, Sign plus 3 digits, LSD=0.1 degree
33	UPD_S1 RNG TRK	43	77	1	Byte	0	5	Tracking Status Inactive=0 Normal=1 Cross Support=2
33	UPD_S1_SPARE	6	12	3	Byte		4	Spare
33	UPD_S1_SPARE10	48	84	3	Byte	ASCII Spaces	4	Spare10
33	UPD_S1_SPARE11	49	87	3	Byte	ASCII Spaces	4	Spare11
33	UPD_S1_SPARE12	57	95	4	Byte		4	Spare12
33	UPD_S1_SPARE2	11b	27	1	Byte		4	Spare2
33	UPD_S1_SPARE3	16	36	1	Byte	ASCII Space	4	Spare3
33	UPD_S1_SPARE4	17	37	5	Byte	ASCII Spaces	4	Spare4
33	UPD_S1_SPARE5	24	52	1	Byte	ASCII Space	4	Spare5
33	UPD_S1_SPARE6	25	53	5	Byte	ASCII Spaces	4	Spare6
33	UPD_S1_SPARE7	31	63	1	Byte	ASCII Space	4	Spare7
33	UPD_S1_SPARE8	46	80	3	Byte	ASCII Spaces	4	Spare8
33	UPD_S1_SPARE9	47	83	1	Byte	ASCII Space	4	Spare9
33	UPD_S1_SPT_TYPE	1	0	1	Byte	1	5	Service Type Return=1

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X=variable	Value Type	Descriptor
33	UPD_S1_SRV_CFG	8	23	1	Byte	1	5	Service Configuration SSA=1
33	UPD_S1_SSA_COMB	50	90	1	Byte	0	5	SSA Combining No=0 Yes=1
33	UPD_S1_STATUS	10	25	1	Byte	0	5	Link Status Active=0 Pending=1 Acq./Reacq.=2
33	UPD_S1_SUBGROUP	5	11	1	Byte	0	5	Subgroup DG1=1
33	UPD_S1_SUBTYPE	4	10	1	Byte	1	5	Service Subtype SSA1=1 SSA2=2
33	UPD_S1_SUPIDEN	2	1	7	Byte	A1873XX	2	SUPIDEN
33	UPD_S1_VEH_IC	3	8	2	Byte	01	2	Vehicle ID, Fixed value=01
34	UPD_S2_1_IBER	22	44	1	Byte		5	SSA1 I channel bit error rate Not valid=0 Rate $\leq 10^{-5}$ =1 Rate $\geq 10^{-5}$ =2
34	UPD_S2_1_IBER_DATA	51	89	1	Byte	0	5	SSA2 I Channel Lock=1
34	UPD_S2_1_ILOCK	20	42	1	Byte	1234	5	SSA2 I Channel Lock=1
34	UPD_S2_1_QBER	23	45	1	Byte		5	SSA2 Q channel bit error rate Not valid=0 Rate $\leq 10^{-5}$ =1 Rate $\geq 10^{-5}$ =2
34	UPD_S2_1_QBER_DATA	52	90	1	Byte	0	5	SSA2 Q Channel Lock=1
34	UPD_S2_1_QLOCK	21	43	1	Byte		5	SSA2 Q Channel Lock=1
34	UPD_S2_1_RCVR	16	30	1	Byte	0	5	1 Receiver
34	UPD_S2_1_SIG	17	31	5	Byte	000000	2	1 Signal
34	UPD_S2_2_IBER	30	60	1	Byte		5	SSA1 I channel bit error rate Not valid=0 Rate $\leq 10^{-5}$ =1 Rate $\geq 10^{-5}$ =2
34	UPD_S2_2_IBER_DATA	53	91	1	Byte	0	5	SSA1 I channel bit error rate Not valid=0 Rate $\leq 10^{-5}$ =1 Rate $\geq 10^{-5}$ =2
34	UPD_S2_2_ILOCK	28	58	1	Byte	1234	5	SSA2 I Channel Lock=1
34	UPD_S2_2_QBER	31	61	1	Byte		5	SSA2 Q channel bit error rate Not valid=0 Rate $\leq 10^{-5}$ =1 Rate $\geq 10^{-5}$ =2
34	UPD_S2_2_QBER_DATA	54	92	1	Byte	0	5	SSA2 Q channel bit error rate Not valid=0 Rate $\leq 10^{-5}$ =1 Rate $\geq 10^{-5}$ =2
34	UPD_S2_2_QLOCK	29	59	1	Byte		5	SSA2 Q Channel Lock=1
34	UPD_S2_2_RCVR	24	46	1	Byte	0	5	2 Receiver
34	UPD_S2_2_SIG	25	47	5	Byte	00000	2	2 Signal
34	UPD_S2_CHN_CFG	39	71	1	Byte	1	5	Channel Configuration Same Data On Both Channels=0 Dual Data Sources=1 Single Source Alternating Channels=2
34	UPD_S2_DATA_VALIDITY	12	26	1	Byte	0	5	WSC Data Valid All Data Valid=0 Some or all data invalid=1-4. See 530-ICD- NCCDS/MOC
34	UPD_S2_DEINT	32	62	1	Byte	0	5	Dent

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X=variable	Value Type	Descriptor
34	UPD_S2_DG2_MOD	49	87	1	Byte	0	5	Dg2 Mod
34	UPD_S2_DOP_TRK	15	29	1	Byte	0	5	Doppler Tracking
34	UPD_S2_I_CODE	40	72	1	Byte	0	5	I Code
34	UPD_S2_I_DFMT	34	8	1	Byte	0	5	I Data format
34	UPD_S2_I_G2INV	42	74	1	Byte	0	5	I Channel G2 inversion Not Inverted=0 Inverted=1
34	UPD_S2_I_SFMT	37	69	1	Byte	0	5	I Channel Bi ϕ conversion
34	UPD_S2_IQ_RATIO	36	66	3	Byte	0	2	IQ Ratio
34	UPD_S2_POLAR	10	24	1	Byte	0	5	Polarization Normal User 0=LCP, 1=RCP
34	UPD_S2_Q_CODE	41	73	1	Byte	0	5	Q Code
34	UPD_S2_Q_DFMT	35	65	1	Byte	0	5	Q Data format
34	UPD_S2_Q_G2INV	43	75	1	Byte	0	5	Q Channel G2 inversion Not Inverted=0 Inverted=1
34	UPD_S2_Q_SFMT	38	70	1	Byte	0	5	Q Channel Bi ϕ conversion
34	UPD_S2_RCVR_CFG	14	28	1	Byte	0	5	Receiver Configuration
34	UPD_S2_RCVR_COH	50	88	1	Byte	0	5	Receiver Coherent
34	UPD_S2_REF_WD	56	99	1	Byte	0	5	Refresh word, Normal=0, Retransmission=1
34	UPD_S2_RF_PT_AZM	7	15	4	Byte	+123	2	Azimuth RF Beam pointing 0 to ± 90 degrees, Sign plus 3 digits, LSD=0.1 degree
34	UPD_S2_RF_PT_ELV	8	19	4	Byte	+123	2	Elevation RF Beam pointing 0 to ± 90 degrees, Sign plus 3 digits, LSD=0.1 degree
34	UPD_S2_SPARE	6	12	3	Byte		4	Spare
34	UPD_S2_SPARE10	46	80	3	Byte		4	Spare 10
34	UPD_S2_SPARE11	47	83	3	Byte		4	Spare 11
34	UPD_S2_SPARE12	55	93	6	Byte		4	Spare 12
34	UPD_S2_SPARE2	13	27	1	Byte	ASCII Space	4	Spare2
34	UPD_S2_SPARE3	18	36	1	Byte		4	Spare 3
34	UPD_S2_SPARE4	19	37	5	Byte		4	Spare 4
34	UPD_S2_SPARE5	26	52	1	Byte		4	Spare 5
34	UPD_S2_SPARE6	27	53	5	Byte		4	Spare 6
34	UPD_S2_SPARE7	33	63	1	Byte		4	Spare 7
34	UPD_S2_SPARE8	44	76	3	Byte		4	Spare 8
34	UPD_S2_SPARE9	45	79	1	Byte		4	Spare 9
34	UPD_S2_SPT_TYPE	1	0	1	Byte	0	5	Service Type
34	UPD_S2_SRV_CFG	9	23	1	Byte	1	5	Service Configuration
34	UPD_S2_SSA_COMB	48	86	1	Byte	0	5	SSA Comb
34	UPD_S2_STATUS	11	25	1	Byte	0	5	Link Status Active=0 Pending=1 Acq./Reacq.=2
34	UPD_S2_SUBGROUP	5	11	1	Byte	0	5	Subgroup
34	UPD_S2_SUBTYPE	4	10	1	Byte	1	5	Service Subtype SSA1=1 SSA2=2
34	UPD_S2_SUPIDEN	2	1	7	Byte	A1873XX	2	SUPIDEN
34	UPD_S2_VEH_IC	3	8	2	Byte	01	2	Vehicle ID, Fixed value=01
35	UPD_RS_I_BER	11	27	4	Byte	VEZZ	2	I Channel frame sync BER where V=0 to 9 YY=00 to -99
35	UPD_RS_I_CLOCK	7	13	1	Byte	0	5	I Channel Clock Presence No=0
35	UPD_RS_I_DENSITY	8	14	2	Byte	50	1	I Channel Data Density 00 to 99%

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X=variable	Value Type	Descriptor
35	UPD_RS_I_SYN_MODE	6	12	1	Byte	0	5	I Channel Frame Sync Mode Search=0 Check=1 Lock=2 Flywheel=3
35	UPD_RS_ICOUNT	10	19	8	Byte	00000000	2	I Channel Dropout Count 00000000 to 99999999
35	UPD_RS_ILOCK	9	16	3	Byte	000	1	I Channel Frames in Lock 000 to 100%
35	UPD_RS_Q_BER	17	46	4	Byte	XEYY	2	Q Channel frame sync BER where V=0 to 9 YY=00 to -99
35	UPD_RS_Q_CLOCK	13	32	1	Byte	0	5	Q Channel Clock Presence No=0
35	UPD_RS_Q_COUNT	16	38	8	Byte	00000000	2	Q Channel Dropout Count 00000000 to 99999999
35	UPD_RS_Q_DENSITY	14	33	2	Byte	00	1	Q Channel Data Density 00 to 99%
35	UPD_RS_Q_LOCK	15	35	3	Byte	000	1	Q Channel Frames in Lock 000 to 100%
35	UPD_RS_Q_SYN_MODE	12	31	1	Byte	0	5	Q Channel Frame Sync Mode Search=0 Check=1 Lock=2 Flywheel=3
35	UPD_RS_REF_WD	19	99	1	Byte	0	5	Refresh word, Normal=0, Retransmission=1
35	UPD_RS_SPARE	18	50	49	Byte	ASCII Space	4	Spare
35	UPD_RS_SPT_TYPE	1	0	1	Byte	2	5	Service Type DQM=2
35	UPD_RS_SUBGROUP	5	11	1	Byte	1	5	Subgroup DG1=1 DG2=2
35	UPD_RS_SUBTYPE	4	10	1	Byte	1	5	Service Subtype SSA1=1 SSA2=2
35	UPD_RS_SUPIDEN	2	1	7	Byte	A1873XX	2	SUPIDEN
35	UPD_RS_VEH_IC	3	8	2	Byte	01	2	Vehicle ID, Fixed value=01
36	UPD_K1_AUTO_STAT	40	8	1	Byte	0	5	Autotrack Status Disabled=0 No Signal=1 Signal Presence, no zero crossing=2, Zero crossing both axes=3, Autotrack in fine pointing mode=4
36	UPD_K1_CHN_CFG	31	55	1	Byte	2	5	Channel Configuration Same Data On Both Channels=0 Dual Data Sources=1 Single Source Alternating Channels=2
36	UPD_K1_DATA_VALIDITY	12	26	1	Byte	0	5	WSC Data Valid All Data Valid=0 Some or all data invalid=1-4. See 530-ICD-NCCDS/MOC
36	UPD_K1_DG1_CFG	36	60	1	Byte	0	5	Dg1 Configuration
36	UPD_K1_DOP_TRK	15	29	1	Byte	0	5	Doppler Tracking
36	UPD_K1_I_BER	24	46	1	Byte	0	5	I BER
36	UPD_K1_I_BER_DATA	43	71	1	Byte	0	5	I BER Data
36	UPD_K1_I_CODING	32	56	1	Byte	0	5	I Channel CodingUncoded=0_rate=1_rate G1 inverted=2
36	UPD_K1_I_FORMAT	26	48	1	Byte	0	5	I Format

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X=variable	Value Type	Descriptor
36	UPD_K1_I_G2INV	34	58	1	Byte	0	5	I Channel G2 inversion Not Inverted=0 Inverted=1
36	UPD_K1_I_LOCK	17	31	1	Byte	0	5	I Lock
36	UPD_K1_I_SIG	18	32	5	Byte	00000	2	I Signal
36	UPD_K1_I_SYMBOL	29	53	1	Byte	0	5	I Symbol
36	UPD_K1_I_SYN_LOCK	22	44	1	Byte	0	5	I symbol Lock
36	UPD_K1_I_TYPE	16	30	1	Byte	1	5	I Type
36	UPD_K1_IQ_RATIO	28	50	3	Byte	+20	2	IQ Channel Power Ratio, sign and 2 digits, LSD=0.1dB
36	UPD_K1_MODE	38	62	1	Byte	0	5	Mode
36	UPD_K1_POLAR	10	24	1	Byte	0	5	Polarization Normal User 0=LCP, 1=RCP
36	UPD_K1_Q_BER	25	47	1	Byte	0	5	Q BER
36	UPD_K1_Q_BER_DATA	44	72	1	Byte	0	5	Q BER Data
36	UPD_K1_Q_CODING	33	57	1	Byte	0	5	Q Channel CodingUncoded=0_rate=1_rate G1 inverted=2
36	UPD_K1_Q_FORMAT	27	49	1	Byte	0	5	Q Format
36	UPD_K1_Q_G2INV	35	59	1	Byte	0	5	Q Channel G2 inversion Not Inverted=0 Inverted=1
36	UPD_K1_Q_LOCK	20	38	1	Byte	0	5	Q Lock
36	UPD_K1_Q_SIG	21	39	5	Byte	00000	2	Q Signal
36	UPD_K1_Q_SYMBOL	30	54	1	Byte	0	5	Q Symbol
36	UPD_K1_Q_SYN_LOCK	23	45	1	Byte	0	5	Q Symbol Lock
36	UPD_K1_Q_TYPE	19	37	1	Byte	1	5	Q Type
36	UPD_K1_RCVR_CFG	14	28	1	Byte	0	5	Receiver DG1configuration Channel BPSK=0Q Channel BPSK=1Both channels (QPSK)=2
36	UPD_K1_RCVR_COH	39	63	1	Byte	0	5	Receiver coherent
36	UPD_K1_REF_WD	46	99	1	Byte	0	5	Refresh word, Normal=0, Retransmission=1
36	UPD_K1_RF_PT_AZM	7	15	4	Byte	+123	2	Azimuth RF Beam pointing 0 to ±90 degrees, Sign plus 3 digits, LSD=0.1 degree
36	UPD_K1_RF_PT_ELV	8	19	4	Byte	+123	2	Elevation RF Beam pointing 0 to ±90 degrees, Sign plus 3 digits, LSD=0.1 degree
36	UPD_K1_RNG_TRK	37	61	1	Byte	0	5	Range Tracking
36	UPD_K1_SPARE	6	12	3	Byte		4	Spare
36	UPD_K1_SPARE2	13	27	1	Byte		4	Spare2
36	UPD_K1_SPARE3	41	65	3	Byte	0	4	Spare 3
36	UPD_K1_SPARE4	42	68	3	Byte	0	4	Spare 4
36	UPD_K1_SPARE5	45	73	26	Byte	0	4	Spare 5
36	UPD_K1_SPT_TYPE	1	0	1	Byte	0	5	Service Type
36	UPD_K1_SRV_CFG	9	23	1	Byte	1	5	Service Configuration
36	UPD_K1_STATUS	11	25	1	Byte	0	5	Link Status Active=0 Pending=1 Acq./Reacq.=2
36	UPD_K1_SUBGROUP	5	11	1	Byte	0	5	Subgroup
36	UPD_K1_SUBTYPE	4	10	1	Byte	1	5	Service Subtype SSA1=1 SSA2=2
36	UPD_K1_SUPIDEN	2	1	7	Byte	A1873XX	2	SUPIDEN
36	UPD_K1_VEH_IC	3	8	2	Byte	01	2	Vehicle ID, Fixed value=01
37	UPD_K2_AUTO_STAT	34	60	1	Byte	0	5	Autotrack Status Disabled=0 No Signal=1 Signal Presence, no zero crossing=2, Zero crossing both axes=3, Autotrack in fine pointing mode=4

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X=variable	Value Type	Descriptor
37	UPD_K2_CHN_CFG	29	55	1	Byte	2	5	Channel Configuration Dual Data Sources=1 Single Source Alternating Channels=0
37	UPD_K2_DATA_VALIDITY	11a	26	1	Byte	0	5	WSC Data Valid All Data Valid=0 Some or all data invalid=1-4. See 530-ICD-NCCDS/MOC
37	UPD_K2_DG2_MOD	37	67	1	Byte	0	5	DG2 Modulation QPSK=0 BPSK=1
37	UPD_K2_DOP_TRK	13	29	1	Byte	0	5	Doppler Tracking Status Inactive=0 1 Way=1 2 Way=2
37	UPD_K2_I_BER	22	46	1	Byte	0	5	I channel bit error rate Not valid=0 Rate $\leq 10^{-5}$ =1 Rate $\geq 10^{-5}$ =2
37	UPD_K2_I_BER_DATA	39	69	1	Byte	0	5	I Channel BER Status Not valid=0 BER $\geq 10^{-3}$ =1 $10^{-3} > \text{BER} \geq 10^{-4}$ =2 $10^{-4} > \text{BER} \geq 10^{-5}$ =3 $10^{-5} > \text{BER} \geq 10^{-6}$ =4 $10^{-6} > \text{BER} \geq 10^{-7}$ =5 $10^{-7} > \text{BER} \geq 10^{-8}$ =6 $10^{-8} > \text{BER} \geq 10^{-9}$ =7 BER $< 10^{-9}$ =8
37	UPD_K2_I_CODING	30	56	1	Byte	0	5	I Channel Coding, Uncoded=0 _rate coded=1
37	UPD_K2_I_FMT_CONV	24	48	1	Byte	0	5	I Channel Data Format Conversion Yes=1
37	UPD_K2_I_G2INV	32	58	1	Byte	0	5	I Channel G2 inversion Not Inverted=0 Inverted=1
37	UPD_K2_I_LOCK	15	31	1	Byte	0	5	I Channel Receiver lock Lock=1
37	UPD_K2_I_SIG	16	32	5	Byte	00000	2	I Channel C/N0 LSD=0.1dB-Hz
37	UPD_K2_I_SYMBOL	27	53	1	Byte	0	5	I Channel Bit Conversion
37	UPD_K2_I_SYN_LOCK	20	44	1	Byte	0	5	I Channel Symbol Lock Lock=1
37	UPD_K2_I_TYPE	14	30	1	Byte	2	5	I Channel High Rate Receiver=2
37	UPD_K2_IQ_RATIO	26	50	3	Byte	+00	2	IQ Channel Power Ratio, sign and 2 digits, LSD=0.1dB
37	UPD_K2_POLAR	9	24	1	Byte	0	5	Polarization Normal User 0=LCP, 1=RCP
37	UPD_K2_Q_BER	23	47	1	Byte	0	5	Q channel bit error rate Not valid=0 Rate $\leq 10^{-5}$ =1 Rate $\geq 10^{-5}$ =2

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X-variable	Value Type	Descriptor
37	UPD_K2_Q_BER_DATA	40	70	1	Byte	0	5	Q Channel BER Status Not valid=0 BER $\geq 10^{-3}$ =1 $10^{-3} > \text{BER} \geq 10^{-4}$ =2 $10^{-4} > \text{BER} \geq 10^{-5}$ =3 $10^{-5} > \text{BER} \geq 10^{-6}$ =4 $10^{-6} > \text{BER} \geq 10^{-7}$ =5 $10^{-7} > \text{BER} \geq 10^{-8}$ =6 $10^{-8} > \text{BER} \geq 10^{-9}$ =7 BER $< 10^{-9}$ =8
37	UPD_K2_Q_CODING	31	57	1	Byte	0	5	Q Channel Coding Uncoded=0 _ rate coded=1
37	UPD_K2_Q_FMT_CONV	25	49	1	Byte	0	5	Q Channel Data Format Conversion Yes=1
37	UPD_K2_Q_G2INV	33	59	1	Byte	0	5	Q Channel G2 inversion Not Inverted=0 Inverted=1
37	UPD_K2_Q_LOCK	18	38	1	Byte	0	5	Q Channel Receiver lock Lock=1
37	UPD_K2_Q_SIG	19	39	5	Byte	0	2	Q Channel C/N0 LSD=0.1dB-Hz
37	UPD_K2_Q_SYMBOL	28	54	1	Byte	0	5	Q Channel Bi ϕ Conversion
37	UPD_K2_Q_SYN_LOCK	21	45	1	Byte		5	Q Channel Symbol Lock Lock=1
37	UPD_K2_Q_TYPE	17	37	1	Byte	1	5	Q Channel High rate receiver=2
37	UPD_K2_RCVR_CFG	12	28	1	Byte	0	5	Receiver Configuration Normal=0
37	UPD_K2_RCVR_COH	38	68	1	Byte	0	5	Receiver coherency Indicator Noncoherent=0
37	UPD_K2_REF_WD	43	99	1	Byte	0	5	Refresh word, Normal=0, Retransmission=1
37	UPD_K2_RF_PT_AZM	7	15	4	Byte	XXXX	2	Azimuth RF Beam pointing 0 to ± 90 degrees, Sign plus 3 digits, LSD=0.1 degree
37	UPD_K2_RF_PT_ELV	7	19	4	Byte	XXXX	2	Elevation RF Beam pointing 0 to ± 90 degrees, Sign plus 3 digits, LSD=0.1 degree
37	UPD_K2_SPARE	6	12	3	Byte	ASCII Spaces	4	Spare
37	UPD_K2_SPARE2	11b	27	1	Byte	ASCII Space	4	Spare2
37	UPD_K2_SPARE3	35	61	3	Byte	ASCII Spaces	4	Spare3
37	UPD_K2_SPARE4	36	8	3	Byte	ASCII Spaces	4	Spare4
37	UPD_K2_SPARE5	41	71	28	Byte	ASCII Spaces	4	Spare 5
37	UPD_K2_SPT_TYPE	1	0	1	Byte	1	5	Service Type Return=1
37	UPD_K2_SRV_CFG	8	23	1	Byte	2	5	Service Configuration KSA=2
37	UPD_K2_STATUS	10	25	1	Byte	0	5	Link Status Active=0 Pending=1 Acq./Reacq.=2
37	UPD_K2_SUBGROUP	5	11	1	Byte	2	5	Subgroup DG2=2
37	UPD_K2_SUBTYPE	4	10	1	Byte	1	5	Service Subtype KSA1=3 KSA2=4
37	UPD_K2_SUPIDEN	2	1	7	Byte	A1873XX	2	SUPIDEN
37	UPD_K2_VEH_IC	3	8	2	Byte	01	2	Vehicle ID, Fixed value=01
38	UPD_KR_3_BER_S	23	65	4	Byte	ASCII Spaces	4	Channel 3 Shuttle

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X=variable	Value Type	Descriptor
38	UPD_KR_3_CLOCK_S	19	51	1	Byte	0	4	Channel 3 Shuttle
38	UPD_KR_3_COUNT_S	22	57	8	Byte	ASCII Spaces	4	Channel 3 Shuttle
38	UPD_KR_3_DENSITY_S	20	52	2	Byte	ASCII Spaces	4	Channel 3 Shuttle
38	UPD_KR_3_LOCK_S	21	54	3	Byte	ASCII Spaces	4	Channel 3 Shuttle
38	UPD_KR_3_SYN_MODE	18	50	1	Byte	0	4	Channel 3 Shuttle
38	UPD_KR_I_BER	11	27	4	Byte	XEYY	2	I Channel frame sync BER where V=0 to 9 YY=00 to -99
38	UPD_KR_I_CLOCK	7	13	1	Byte	0	5	I Channel Clock Presence No=0
38	UPD_KR_I_DENSITY	8	14	2	Byte	00	1	I Channel Data Density 00 to 99%
38	UPD_KR_I_SYN_MODE	6	12	1	Byte	0	5	I Channel Frame Sync Mode Search=0 Check=1 Lock=2 Flywheel=3
38	UPD_KR_ICOUNT	10	19	8	Byte	00000000	2	I Channel Dropout Count 00000000 to 99999999
38	UPD_KR_ILOCK	9	16	3	Byte	000	1	I Channel Frames in Lock 000 to 100%
38	UPD_KR_Q_BER	17	46	4	Byte	XEYY	2	Q Channel frame sync BER where V=0 to 9 YY=00 to -99
38	UPD_KR_Q_CLOCK	13	32	1	Byte	0	5	Q Channel Clock Presence No=0
38	UPD_KR_Q_COUNT	16	38	8	Byte	00000000	2	Q Channel Dropout Count 00000000 to 99999999
38	UPD_KR_Q_DENSITY	14	33	2	Byte	00	1	Q Channel Data Density 00 to 99%
38	UPD_KR_Q_LOCK	15	35	3	Byte	000	1	Q Channel Frames in Lock 000 to 100%
38	UPD_KR_Q_SYN_MODE	12	31	1	Byte	0	5	Q Channel Frame Sync Mode Search=0 Check=1 Lock=2 Flywheel=3
38	UPD_KR_REF_WD	25	99	1	Byte	0	5	Refresh word, Normal=0, Retransmission=1
38	UPD_KR_SPARE	24	69	30	Byte	ASCII Spaces	4	Spare
38	UPD_KR_SPT_TYPE	1	0	1	Byte	2	5	Service Type DQM=2
38	UPD_KR_SUBGROUP	5	11	1	Byte	2	5	Subgroup DG2=2
38	UPD_KR_SUBTYPE	4	10	1	Byte	1	5	Service Subtype KSA1=3 KSA2=4
38	UPD_KR_SUPIDEN	2	1	7	Byte	A1873XX	2	SUPIDEN
38	UPD_KR_VEH_IC	3	8	2	Byte	01	2	Vehicle ID, Fixed value=01
39	UPD_MF_CLOCK	9	37	1	Byte	0	5	Clock Presence No=0
39	UPD_MF_DATA_VALIDITY	4a	10	1	Byte	0	5	WSC Data Valid All Data Valid=0 Some or all data invalid=1-4. See 530-ICD-NCCDS/MOC
39	UPD_MF_DENSITY	10	38	2	Byte	00	1	Density Channel Data Density 00 to 99%
39	UPD_MF_EIRP	6	21	4	Byte	+123	2	EIRP, SIGN AND 3 DIGITS, LSD=0.1DBW

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X=variable	Value Type	Descriptor
39	UPD_MF_FREQ	7	25	10	Byte	02106XX XXX	2	Spacecraft Receive Frequency LSD=10 Hz
39	UPD_MF_REF_WD	12	99	1	Byte	0	5	Refresh word, Normal=0, Retransmission=1
39	UPD_MF_RF_PT_AZM	5	13	4	Byte	XXXX	2	Azimuth RF Beam pointing 0 to ± 90 degrees, Sign plus 3 digits, LSD=0.1 degree
39	UPD_MF_RF_PT_ELV	5	17	4	Byte	XXXX	2	Elevation RF Beam pointing 0 to ± 90 degrees, Sign plus 3 digits, LSD=0.1 degree
39	UPD_MF_SPARE	4b	11	2	Byte	ASCII Spaces	4	Spare
39	UPD_MF_SPARE2	11	39	60	Byte		4	Spare
39	UPD_MF_SPT_TYPE	1	0	1	Byte	0	5	Service Type Forward=0
39	UPD_MF_STATUS	8	35	1	Byte	0	5	Link Status Active=0 Pending=1 Acq./Reacq.=2
39	UPD_MF_SUPIDEN	2	1	7	Byte	A1873XX	2	SUPIDEN
39	UPD_MF_VEH_IC	3	8	2	Byte	01	2	Vehicle ID, Fixed value=01
40	UPD_MR_CHN_CFG	24	49	1	Byte	1	5	Channel Configuration Single Source=0 Dual Data Sources=1
40	UPD_MR_CONFIG	17	38	1	Byte	1	5	Configuration I Channel BPSK=0 Q Channel BPSK=1 Both channels (QPSK)=2
40	UPD_MR_DATA_VALIDITY	5a	12	1	Byte	0	5	WSC Data Valid All Data Valid=0 Some or all data invalid=1-4. See 530-ICD-NCCDS/MOC
40	UPD_MR_DOP_STATUS	9	28	1	Byte	0	5	Doppler Tracking Status Inactive=0 1 Way=1 2 Way=2
40	UPD_MR_I_BER	22	47	1	Byte	0	5	I channel bit error rate Not valid=0 Rate $\leq 10^{-5}$ =1 Rate $\geq 10^{-5}$ =2
40	UPD_MR_I_BER_DATA	30	55	1	Byte	0	5	I Channel BER Status Not valid=0 BER $\geq 10^{-3}$ =1 $10^{-3} > BER \geq 10^{-4}$ =2 $10^{-4} > BER \geq 10^{-5}$ =3 $10^{-5} > BER \geq 10^{-6}$ =4 $10^{-6} > BER \geq 10^{-7}$ =5 $10^{-7} > BER \geq 10^{-8}$ =6 $10^{-8} > BER \geq 10^{-9}$ =7 BER $< 10^{-9}$ =8
40	UPD_MR_I_FORMAT	12	31	1	Byte	0	5	I data format conversion Yes=1
40	UPD_MR_I_G2INV	28	53	1	Byte	0	5	I Channel G2 inversion Not Inverted=0 Inverted=1
40	UPD_MR_I_SYMBOL	15	36	1	Byte	0	5	I Channel Bi ϕ conversion
40	UPD_MR_I_SYN_LOCK	20	45	1	Byte	0	5	I channel Symbol Lock Lock=1
40	UPD_MR_IQ_RATIO	14	33	3	Byte	+60	2	IQ Channel Power Ratio, sign and 2 digits, LSD=0.1dB
40	UPD_MR_LOCK	18	39	1	Byte	0	5	Receiver Lock Lock=1
40	UPD_MR_MA_LINK	8	26	2	Byte	1	5	MA Beam Forming Equipment ID 01 to 06

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X=variable	Value Type	Descriptor
40	UPD_MR_MODE	27	52	1	Byte	0	5	Mode Mode 1, Coherent=1 Mode Noncoherent=1
40	UPD_MR_Q_BER	23	48	1	Byte	0	5	Q channel bit error rate Not valid=0 Rate $\leq 10^{-5}$ =1 Rate $\geq 10^{-5}$ =2
40	UPD_MR_Q_BER_DATA	31	56	1	Byte	0	5	Q Channel BER Status Not valid=0 $BER \geq 10^{-3}$ =1 $10^{-3} > BER \geq 10^{-4}$ =2 $10^{-4} > BER \geq 10^{-5}$ =3 $10^{-5} > BER \geq 10^{-6}$ =4 $10^{-6} > BER \geq 10^{-7}$ =5 $10^{-7} > BER \geq 10^{-8}$ =6 $10^{-8} > BER \geq 10^{-9}$ =7 $BER < 10^{-9}$ =8
40	UPD_MR_Q_FORMAT	13	32	1	Byte	0	5	Q data format conversion Yes=1
40	UPD_MR_Q_G2INV	29	54	1	Byte	0	5	Q Channel G2 inversion Not Inverted=0 Inverted=1
40	UPD_MR_Q_SYMBOL	16	37	1	Byte	0	5	Q Channel Bi ϕ conversion
40	UPD_MR_Q_SYN_LOCK	21	46	1	Byte		5	Q channel Symbol Lock Lock=1
40	UPD_MR_RCVR_CFG	11	30	1	Byte		5	Receiver Configuration Coherent=1 Noncoherent=0
40	UPD_MR_REF_WD	33	99	1	Byte	0	5	Refresh word, Normal=0, Retransmission=1
40	UPD_MR_RF_PT_AZM	7	18	4	Byte	+123	2	Azimuth RF Beam pointing 0 to ± 90 degrees, Sign plus 3 digits, LSD=0.1 degree
40	UPD_MR_RF_PT_ELV	7	22	4	Byte	+123	2	Elevation RF Beam pointing 0 to ± 90 degrees, Sign plus 3 digits, LSD=0.1 degree
40	UPD_MR RNG STATUS	10	29	1	Byte	0	5	Range Tracking Status Inactive=0 Active=0
40	UPD_MR_SCH_LINK	4	10	2	Byte	1	2	Scheduled Link
40	UPD_MR_SIGNAL	19	40	5	Byte	00000	5	Signal Strength C/N0 LSD=0.1dB-Hz
40	UPD_MR_SPARE	5b	13	2	Byte		4	Spare
40	UPD_MR_SPARE2	6	15	3	Byte		4	Spare
40	UPD_MR_SPARE3	26	51	1	Byte		4	Spare
40	UPD_MR_SPARE4	32	57	42	Byte		4	Spare
40	UPD_MR_SPT_TYPE	1	0	1	Byte	1	5	Service Type Return=1
40	UPD_MR_STATUS	25	50	1	Byte	0	5	Link Status Active=0 Pending=1 Acq./Reacq.=2
40	UPD_MR_SUPIDEN	2	1	7	Byte	A1873XX	2	SUPIDEN
40	UPD_MR_VEH_IC	3	8	2	Byte	01	2	Vehicle ID Fixed Value=01
41	UPD_DQ_I_BER	10	27	4	Byte	0000	2	I Channel frame sync BER where V=0 to 9 YY=00 to -99
41	UPD_DQ_I_CLOCK	6	13	1	Byte	0	5	I Clock Presence No=0
41	UPD_DQ_I_COUNT	9	19	8	Byte	00000000	2	I Channel Dropout Count 00000000 to 99999999
41	UPD_DQ_I_DENSITY	7	14	2	Byte	00	2	I Channel Data Density 00 to 99%
41	UPD_DQ_I_LOCK	8	16	3	Byte	000	2	I Channel Frames in Lock 000 to 100%

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X=variable	Value Type	Descriptor
41	UPD_DQ_I_SYN_MODE	5	11	1	Byte	1	5	I Channel Frame Sync Mode Search=0 Check=1 Lock=2 Flywheel=3
41	UPD_DQ_Q_BER	16	46	4	Byte	XEYY	2	Q Channel frame sync BER where V=0 to 9 YY=00 to -99
41	UPD_DQ_Q_CLOCK	12	32	1	Byte	0	5	Q Clock Presence No=0
41	UPD_DQ_Q_COUNT	15	38	8	Byte	000	2	Q Channel Dropout Count 00000000 to 99999999
41	UPD_DQ_Q_DENSITY	13	33	2	Byte	0	2	Q Channel Data Density 00 to 99%
41	UPD_DQ_Q_LOCK	14	35	3	Byte	000	2	Q Channel Frames in Lock 000 to 100%
41	UPD_DQ_Q_SYN_MODE	11	31	1	Byte	XEYY	5	Q Channel Frame Sync Mode Search=0 Check=1 Lock=2 Flywheel=3
41	UPD_DQ_REF_WD	18	99	1	Byte	0	5	Refresh word, Normal=0, Retransmission=1
41	UPD_DQ_SCH_LINK	4	10	2	Byte	1	5	Scheduled Link
41	UPD_DQ_SPARE	17	50	49	Byte		4	Spare
41	UPD_DQ_SPT_TYPE	1	0	1	Byte	2	5	Service Type DQM=2
41	UPD_DQ_SUPIDEN	2	1	7	Byte	A1873XX	2	SUPIDEN
41	UPD_DQ_VEH_IC	3	8	2	Byte	01	2	Vehicle ID, Fixed value=01
42	UPD_FD_ANT_POLAR	5	11	1	Byte	0	5	Antenna Polarization Normal User 0=LCP, 1=RCP
42	UPD_FD_BER_STAT	14	34	1	Byte	1	5	BER Status
42	UPD_FD_BIT_SYNC_LCK	12	32	1	Byte	0	5	Bit Sync Lock
42	UPD_FD_CHN_LCK	10	30	1	Byte	0	5	Channel Lock
42	UPD_FD_CRR_LCK	11	31	1	Byte	0	5	Carrier Lock
42	UPD_FD_DATA_VALIDITY	15	35	1	Byte	0	5	WSC Data Valid All Data Valid=0 Some or all data invalid=1-4. See 530-ICD-NCCDS/MOC
42	UPD_FD_FREQ	9	20	10	Byte	00000000	2	Frequency
42	UPD_FD_GAIN	8	16	4	Byte	0000	1	Gain
42	UPD_FD_REF_WD	17	99	1	Byte	0	5	Refresh Word
42	UPD_FD_SPARE	6	12	1	Byte		4	Spare
42	UPD_FD_SPARE2	7	13	3	Byte		4	Spare 2
42	UPD_FD_SPARE3	13	33	1	Byte		4	Spare 3
42	UPD_FD_SPARE4	16	36	63	Byte		4	Spare 4
42	UPD_FD_SPT_TYPE	1	0	1	Byte	0	5	Service Type
42	UPD_FD_SUBTYPE	4	10	1	Byte	0	5	Service Subtype SSA1=1 SSA2=2
42	UPD_FD_SUPIDEN	2	1	7	Byte	A1873XX	2	SUPIDEN
42	UPD_FD_VEH_IC	3	8	2	Byte	01	2	Vehicle ID, Fixed value=01
43	UPD_RD_ANT_POLAR	5	11	1	Byte	0	5	Antenna Polarization Normal User 0=LCP, 1=RCP
43	UPD_RD_DATA_VALIDITY	10	30	1	Byte	0	5	WSC Data Valid All Data Valid=0 Some or all data invalid=1-4. See 530-ICD-NCCDS/MOC
43	UPD_RD_EIRP	8	16	4	Byte	0000	2	EIRP, SIGN AND 3 DIGITS, LSD=0.1DBW

Table C-4. Packet Definitions (continued)

Type	Mnemonic	*ICD Item	Offset	Length	Length unit	Value X= variable	Value Type	Descriptor
43	UPD_RD_FREQ	9	20	10	Byte	00000000 00	2	Frequency
43	UPD_RD_REF_WD	12	99	1	Byte	0	5	Refresh word, Normal=0, Retransmission=1
43	UPD_RD_SPARE	6	12	1	Byte		4	Spare
43	UPD_RD_SPARE2	7	13	3	Byte		4	Spare 2
43	UPD_RD_SPARE3	11	31	68	Byte		4	Spare3
43	UPD_RD_SPT_TYPE	1	0	1	Byte	0	5	Service Type
43	UPD_RD_SUBTYPE	4	10	1	Byte	0	5	Service Subtype SSA1=1 SSA2=2
43	UPD_RD_SUPIDEN	2	1	7	Byte	A1873XX	2	SUPIDEN
43	UPD_RD_VEH_IC	3	8	2	Byte	01	2	Vehicle ID, Fixed value=01

*Notes:

The ICD Item Numbers reset to 1 for each type of message or header

Packet type 1 Mnemonics are also grouped by item subgroups based on what Message or system the item is derived from.

E = EDOS Service Header

C = CCSDS Header

DB =FOS Database

Offset in bytes shown are restarted at message, header, and status block changes.

For example: The Offset in bytes shown for the CODA Report resets to zero for First byte of the CODA Return Link Physical Channel Status Block, VCDU Processing Status Block, and the Forward Link Physical Channel Status Block.

Appendix D. Carry-Out File

D.1 Carry-Out File Data

The FOS Analysis Subsystem within the EOC generates carry-out files, in accordance with the FOS Analysis Design Specification (305-CD-047-001) to support routine FOT analysis operations. A Carry-Out File is a standard output file created by the FOS Analysis Subsystem generic output file function in response to an FOT request. The standard carry-out file format provides the means to represent different parameter data in a consistent manner. Created carry-out files are protected and available as “read-only”. Carry-out files can be generated to contain the following data:

- AM-1 spacecraft housekeeping data
- AM-1 spacecraft health and safety data
- AM-1 diagnostic telemetry data
- Network Control Center (NCC) User Performance Data (UPD) message data [also known as operations data message (ODM) data]
- EDOS Customer Operations and Data Accounting (CODA) message data

Carry-out file size for electronic data transfer may not exceed the 2 GB UNIX file size limit.

D.2 Carry-Out File Format and Contents

The general format and contents of an EOC carry-out file are shown in Table D-1. Carry-out file data is provided in the American Standard Code for Information Interchange (ASCII). Each record in a carry-out file terminates with an ASCII new-line character. Fields within in a record are separated by the vertical bar "|" delimiter. Fields may vary in length up to the maximum size indicated.

NOTE

A Field is unfilled when value does not exist for the parameter identified.

Carry-out file contents vary depending on mission start and stop times and set of parameters specified in each FOT file generation request. Valid Parameter Mnemonics and Parameter IDs are found in the EOC Project Database (PDB), the operational point of control for AM-1 spacecraft definition files, which are provided and validated through the collective effort of the FOT, the AM-1 spacecraft vendor, and other designated sources.

Each carry-out file includes one File Header, at least one Header Record, and one or more Data Records. A single Header Record is included for each spacecraft parameter addressed in a carry-out file. There may be one or more Data Records associated with each Header Record. Data

Records map to the corresponding Header Record through the Parameter ID. Data Records include converted data values and may also include raw data and decoded data. Converted data is presented in the form of engineering unit (EU) converted values or discrete state converted values. A sample carry-out file is shown in Figure D-1.

Table D-1. Carry-Out File Data Format (1 of 2)

Item #	Data Item	Data Type	Format / Maximum Size (in Bytes)	Values
--	File Header	--	--	--
H1	Time of First Parameter in string format, YYYY/DDD HH:MM:SS.MMM	String	ASCII 21B	Valid mission times
H2	Total Number of Header Records	16 Bit Integer	ASCII 5B	0 to 65535
--	Start Header Record	--	--	--
H3	Parameter Mnemonic	String	ASCII 20B	Valid Parameter Mnemonic per PDB
H4	FOS Parameter ID	16 Bit Integer	ASCII 6B	Valid Parameter ID per EOC Data Base
H5	AM-1 PDB Parameter ID	16 Bit Integer	ASCII 5B	Valid Parameter ID per AM-1 PDB
H6	Data Type defined by: R = Real I = Integer S = String (e.g. Discrete State String)	Character	ASCII 1B	R, I or S
H7	Start and Stop Time of Database for which this PID is invalid. String format as in H1 with hyphen separator ¹ . This parameter identifies the time period of any data dropouts in the carry out file due to an invalid or nonexistent PID entry in the database. This field is unfilled when a valid database entry exists for this PID for the entire time period covered by the dataset.	String	43B	Valid Mission Times
--	End Header Record [Repeat Header Record for each Parameter]			--
--	Start Data Record	--	--	--
D1	Time of Parameter, stated as offset time from Item H1 the start time of the first parameter	Real 8 Byte Floating Point Number	ASCII 16B	Offset Time in Seconds
D2	FOS Parameter ID	16 Bit Integer	ASCII 6B	Valid Parameter ID per EOC Data Base
D3	AM-1 PDB Parameter ID	16 Bit Integer	ASCII 5B	Valid Parameter ID per AM-1 PDB
D4	Raw value ¹ (Raw values are not reported for ground telemetry.)	Integer	ASCII 10B	All
D5	Converted value	Variable per Item H6	ASCII 16B	Variable per Data Type
D6	Decoded value ¹	32 Bit Integer	ASCII 10B	All

Table D-1. Carry-Out File Data Format (2 of 2)

Item #	Data Item	Data Type	Format / Maximum Size (in Bytes)	Values
D7	Status Word, containing data for status flags arranged as bits in a 32 Bit Integer where Bit 0 is the Least Significant Bit. Bit 0 RedHi Bit 1 RedLow Bit 2 YellowHi Bit 3 YellowLow Bit 4 Delta Limit Bit 5 Rail Limit Bit 6 Quality Bit 7 Conversion Error Bits 8-31 Reserved for Future Use	32 Bit Integer	ASCII 10B	All
--	<i>End Data Record (End Line) [Repeat D1 - D7 until End of File]</i>			

Sample Record

```
1999/234 19:23:43.024
3
MPSEMISA1|123|23IR||
MPSEMISA2|124|24IR||
MPSEPMONOUT2|13456|3456|||
0.0|123|23I029|23.5676||0
0.001|124|24I099|83.5676||4
0.052|123|23I029|23.5676||0
0.055|124|24I089|80.5676||4
1.000|13456|3456|4294967295||-1|0
.....etc.....
```

Sample Record Data Description

```
; time of first parameter
; total number of header records
; first header record
; second header record
; last header record. Rest of file is data.
; data record for FOS Parameter ID 123, no decoded
value
; data record for FOS Parameter ID 124, no decoded
value
; data record for FOS Parameter ID 123, no decoded
value
; data record for FOS Parameter ID 124, no decoded
value
; data record for FOS Parameter ID 13456, no
converted value
```

Figure D-1. Sample Carry-Out File Record

This page intentionally left blank.

Appendix E. Timeline Symbols-

The table below documents symbols utilized on the Timeline to represent orbital events.

Table E-1. Discrete Orbital Events

	APOGEE	Apogee Event
	CERES_Beta_Angle_Danger_Zone_End	CERES Beta Angle Danger End Event
	CERES_Beta_Angle_Danger_Zone_Start	CERES Beta Angle Danger Start Event
	CERES_Elev_Angle_Danger_Zone_End	CERES Elevation Angle Danger End Event
	CERES_Elev_Angle_Danger_Zone_Start	CERES Elevation Angle Danger Start Event
	CERES_Footprint_Tgt_Vis_Entry_Baltimore_City	CERES Target Visibility Entry for Baltimore Event
	CERES_Footprint_Tgt_Vis_Exit_Baltimore_City	CERES Target Visibility Exit for Baltimore Event
	CERES_Tgt_Closest_Approach_To_Nadir_Baltimore_City	CERES Tgt Closest Approach To Nadir To Baltimore Event
	Delta-V_Orbit_Maneuver	Delta-V Orbit Maneuver Event
	Ground_Contact_End_BMD	Direct Access Antenna Ground Contact End - WOTS
	Ground_Contact_End_CAN	Direct Access Antenna Ground Contact End - SGS
	Ground_Contact_End_GDS	Direct Access Antenna Ground Contact End - AGS
	Ground_Contact_Start_BMD	Direct Access Antenna Ground Contact Start - WOTS
	Ground_Contact_Start_CAN	Direct Access Antenna Ground Contact Start - SGS
	Ground_Contact_Start_GDS	Direct Access Antenna Ground Contact Start - AGS
	HGA-TDRS_AOS_TD1	HGA-to-TDRS Satellite 1 Acquisition of Signal Event
	HGA-TDRS_AOS_TD3	HGA-to-TDRS Satellite 3 Acquisition of Signal Event
	HGA-TDRS_AOS_TD4	HGA-to-TDRS Satellite 4 Acquisition of Signal Event

Table E-1. Discrete Orbital Events (continued)

	HGA-TDRS_AOS_TD5	HGA-to-TDRS Satellite 5 Acquisition of Signal Event
	HGA-TDRS_AOS_TD6	HGA-to-TDRS Satellite 6 Acquisition of Signal Event
	HGA-TDRS_AOS_TD7	HGA-to-TDRS Satellite 7 Acquisition of Signal Event
	HGA-TDRS_LOS_TD1	HGA-to-TDRS Satellite 1 Loss of Signal Event
	HGA-TDRS_LOS_TD3	HGA-to-TDRS Satellite 3 Loss of Signal Event
	HGA-TDRS_LOS_TD4	HGA-to-TDRS Satellite 4 Loss of Signal Event
	HGA-TDRS_LOS_TD5	HGA-to-TDRS Satellite 5 Loss of Signal Event
	HGA-TDRS_LOS_TD6	HGA-to-TDRS Satellite 6 Loss of Signal Event
	HGA-TDRS_LOS_TD7	HGA-to-TDRS Satellite 7 Loss of Signal Event
	MISR_Footprint_Tgt_Vis_Entry_London_City	MISR Target Visibility Entry for London Event
	MISR_Footprint_Tgt_Vis_Exit_London_City	MISR Target Visibility Exit for London
	MISR_Jupiter_Entry	Planet/Star Field of View MISR Jupiter Entry Event
	MISR_Jupiter_Exit	Planet/Star Field of View MISR Jupiter Exit Event
	MISR_Mars_Entry	Planet/Star Field of View MISR Mars Entry Event
	MISR_Mars_Exit	Planet/Star Field of View MISR Mars Exit Event
	MISR_Mercury_Entry	Planet/Star Field of View MISR Mercury Entry Event
	MISR_Mercury_Exit	Planet/Star Field of View MISR Mercury Exit Event
	MISR_Moon_Entry	Sun/Moon Field of View MISR Moon Entry Event
	MISR_Moon_Exit	Sun/Moon Field of View MISR Moon Exit Event
	MISR_Neptune_Entry	Planet/Star Field of View MISR Neptune Entry Event
	MISR_Neptune_Exit	Planet/Star Field of View MISR Neptune Exit Event

Table E-1. Discrete Orbital Events (continued)

	MISR_Pluto_Entry	Planet/Star Field of View MISR Pluto Entry Event
	MISR_Pluto_Exit	Planet/Star Field of View MISR Pluto Exit Event
	MISR_Saturn_Entry	Planet/Star Field of View MISR Saturn Entry Event
	MISR_Saturn_Exit	Planet/Star Field of View MISR Saturn Exit Event
	MISR_Star_Entry	Planet/Star Field of View MISR Star Entry Event
	MISR_Star_Exit	Planet/Star Field of View MISR Star Exit Event
	MISR_Sun_Entry	Sun/Moon Field of View MISR Sun Entry Event
	MISR_Sun_Exit	Sun/Moon Field of View MISR Sun Exit Event
	MISR_Tgt_Closest_Approach_To_Nadir_London_City	MISR Tgt Closest Approach To Nadir To London Event
	MISR_Uranus_Entry	Planet/Star Field of View MISR Uranus Entry Event
	MISR_Uranus_Exit	Planet/Star Field of View MISR Uranus Exit Event
	MISR_Venus_Entry	Planet/Star Field of View MISR Venus Entry Event
	MISR_Venus_Exit	Planet/Star Field of View MISR Venus Exit Event
	MISR1_LOS_Term_Crossing_to_Day	MISR Camera 1 Loss of Signal Terminator Crossing-to-Day Event
	MISR1_LOS_Term_Crossing_to_Nite	MISR Camera 1 Loss of Signal Terminator Crossing-to-Night Event
	MISR2_LOS_Term_Crossing_to_Day	MISR Camera 2 Loss of Signal Terminator Crossing-to-Day Event
	MISR2_LOS_Term_Crossing_to_Nite	MISR Camera 2 Loss of Signal Terminator Crossing-to-Night Event
	MISR3_LOS_Term_Crossing_to_Day	MISR Camera 3 Loss of Signal Terminator Crossing-to-Day Event
	MISR3_LOS_Term_Crossing_to_Nite	MISR Camera 3 Loss of Signal Terminator Crossing-to-Night Event
	MISR4_LOS_Term_Crossing_to_Day	MISR Camera 4 Loss of Signal Terminator Crossing-to-Day Event
	MISR4_LOS_Term_Crossing_to_Nite	MISR Camera 4 Loss of Signal Terminator Crossing-to-Night Event

Table E-1. Discrete Orbital Events (continued)

	MISR5_LOS_Term_Crossing_to_Day	MISR Camera 5 Loss of Signal Terminator Crossing-to-Day Event
	MISR5_LOS_Term_Crossing_to_Nite	MISR Camera 5 Loss of Signal Terminator Crossing-to-Night Event
	MISR6_LOS_Term_Crossing_to_Day	MISR Camera 6 Loss of Signal Terminator Crossing-to-Day Event
	MISR6_LOS_Term_Crossing_to_Nite	MISR Camera 6 Loss of Signal Terminator Crossing-to-Night Event
	MISR7_LOS_Term_Crossing_to_Day	MISR Camera 7 Loss of Signal Terminator Crossing-to-Day Event
	MISR7_LOS_Term_Crossing_to_Nite	MISR Camera 7 Loss of Signal Terminator Crossing-to-Night Event
	MISR8_LOS_Term_Crossing_to_Day	MISR Camera 8 Loss of Signal Terminator Crossing-to-Day Event
	MISR8_LOS_Term_Crossing_to_Nite	MISR Camera 8 Loss of Signal Terminator Crossing-to-Night Event
	MISR9_LOS_Term_Crossing_to_Day	MISR Camera 9 Loss of Signal Terminator Crossing-to-Day Event
	MISR9_LOS_Term_Crossing_to_Nite	MISR Camera 9 Loss of Signal Terminator Crossing-to-Night Event
	MODIS_Footprint_Tgt_Vis_Entry_Paris_City	MODIS Target Visibility Entry for Paris Event
	MODIS_Footprint_Tgt_Vis_Exit_Paris_City	MODIS Target Visibility Exit for Paris Event
	MODIS_Jupiter_Entry	Planet/Star Field of View MODIS Jupiter Entry Event
	MODIS_Jupiter_Exit	Planet/Star Field of View MODIS Jupiter Exit Event
	MODIS_LOS_Term_Crossing_to_Day	MODIS Loss of Signal Terminator Crossing-to-Day Event
	MODIS_LOS_Term_Crossing_to_Nite	MODIS Loss of Signal Terminator Crossing-to-Night Event
	MODIS_Mars_Entry	Planet/Star Field of View MODIS Mars Entry Event
	MODIS_Mars_Exit	Planet/Star Field of View MODIS Mars Exit Event
	MODIS_Mercury_Entry	Planet/Star Field of View MODIS Mercury Entry Event
	MODIS_Mercury_Exit	Planet/Star Field of View MODIS Mercury Exit Event
	MODIS_Moon_Entry	Sun/Moon Field of View MODIS Moon Entry Event

Table E-1. Discrete Orbital Events (continued)

	MODIS_Moon_Exit	Sun/Moon Field of View MODIS Moon Entry Exit Event
	MODIS_Neptune_Entry	Planet/Star Field of View MODIS Neptune Entry Event
	MODIS_Neptune_Exit	Planet/Star Field of View MODIS Neptune Exit Event
	MODIS_Pluto_Entry	Planet/Star Field of View MODIS Pluto Entry Event
	MODIS_Pluto_Exit	Planet/Star Field of View MODIS Pluto Exit Event
	MODIS_Saturn_Entry	Planet/Star Field of View MODIS Saturn Entry Event
	MODIS_Saturn_Exit	Planet/Star Field of View MODIS Saturn Exit Event
	MODIS_Star_Entry	Planet/Star Field of View MODIS Star Entry Event
	MODIS_Star_Exit	Planet/Star Field of View MODIS Star Exit Event
	MODIS_Sun_Entry	Sun/Moon Field of View MODIS Sun Entry Event
	MODIS_Sun_Exit	Sun/Moon Field of View MODIS Sun Exit Event
	MODIS_Target_FOV_Entry_SITEA	MODIS Target Field Of View Entry Event for SITE A
	MODIS_Target_FOV_Entry_SITEB	MODIS Target Field Of View Entry Event for SITE B
	MODIS_Target_FOV_Entry_SITEC	MODIS Target Field Of View Entry Event for SITE C
	MODIS_Target_FOV_Entry_SITED	MODIS Target Field Of View Entry Event for SITE D
	MODIS_Target_FOV_Entry_SITEE	MODIS Target Field Of View Entry Event for SITE E
	MODIS_Target_FOV_Exit_SITEA	MODIS Target Field Of View Exit Event for SITE A
	MODIS_Target_FOV_Exit_SITEB	MODIS Target Field Of View Exit Event for SITE B
	MODIS_Target_FOV_Exit_SITEC	MODIS Target Field Of View Exit Event for SITE C
	MODIS_Target_FOV_Exit_SITED	MODIS Target Field Of View Exit Event for SITE D
	MODIS_Target_FOV_Exit_SITEE	MODIS Target Field Of View Exit Event for SITE E

Table E-1. Discrete Orbital Events (continued)

	MODIS_Tgt_Closest_Approach_To_Nadir_Paris_City	MODIS Tgt Closest Approach To Nadir To Paris Event
	MODIS_Uranus_Entry	Planet/Star Field of View MODIS Uranus Entry Event
	MODIS_Uranus_Exit	Planet/Star Field of View MODIS Uranus Exit Event
	MODIS_Venus_Entry	Planet/Star Field of View MODIS Venus Entry Event
	MODIS_Venus_Exit	Planet/Star Field of View MODIS Venus Exit Event
	MOPITT_Footprint_Tgt_Vis_Entry_Hawaii_State	MOPITT Target Visibility Entry for Hawaii Event
	MOPITT_Footprint_Tgt_Vis_Exit_Hawaii_State	MOPITT Target Visibility Exit for Hawaii Event
	MOPITT_Tgt_Closest_Approach_To_Nadir_Hawaii_State	MOPITT Tgt Closest Approach To Nadir To Hawaii Event
	Nadir_Term_Crossing_to_Day	Nadir Terminator Crossing from Night to Day Event
	Nadir_Term_Crossing_to_Nite	Nadir Terminator Crossing from Day to Night Event
	Node_Ascending	Ascending Node Time of Crossing and Longitude Event
	Node_Descending	Descending Node Time of Crossing and ILngitude Event
	OMNI-GND_AOS_BMD	Omni-to-Ground Station Bermuda Acquisition of Signal Event
	OMNI-GND_AOS_CAN	Omni-to-Ground Station Canberra Acquisition of Signal Event
	OMNI-GND_AOS_GDS	Omni-to-Ground Station Goldstone Acquisition of Signal Event
	OMNI-GND_LOS_BMD	Omni-to-Ground Station Bermuda Loss of Signal Event
	OMNI-GND_LOS_CAN	Omni-to-Ground Station Canberra Loss of Signal Event
	OMNI-GND_LOS_GDS	Omni-to-Ground Station Goldstone Loss of Signal Event
	OMNI-TDRS_AOS_TD1	Omni-to-TDRS Satellite 1 Acquisition of Signal Event
	OMNI-TDRS_AOS_TD3	Omni-to-TDRS Satellite 3 Acquisition of Signal Event
	OMNI-TDRS_AOS_TD4	Omni-to-TDRS Satellite 4 Acquisition of Signal Event

Table E-1. Discrete Orbital Events (continued)

	OMNI-TDRS_AOS_TD5	Omni-to-TDRS Satellite 5 Acquisition of Signal Event
	OMNI-TDRS_AOS_TD6	Omni-to-TDRS Satellite 6 Acquisition of Signal Event
	OMNI-TDRS_AOS_TD7	Omni-to-TDRS Satellite 7 Acquisition of Signal Event
	OMNI-TDRS_LOS_TD1	Omni-to-TDRS Satellite 1 Loss of Signal Event
	OMNI-TDRS_LOS_TD3	Omni-to-TDRS Satellite 3 Loss of Signal Event
	OMNI-TDRS_LOS_TD4	Omni-to-TDRS Satellite 4 Loss of Signal Event
	OMNI-TDRS_LOS_TD5	Omni-to-TDRS Satellite 5 Loss of Signal Event
	OMNI-TDRS_LOS_TD6	Omni-to-TDRS Satellite 6 Loss of Signal Event
	OMNI-TDRS_LOS_TD7	Omni-to-TDRS Satellite 7 Loss of Signal Event
	Orbit_Start	Orbit Start Event
	PERIGEE	Perigee Event
	S/C_Day/Night	Sunset Event
	S/C_Maximum_Latitude	Maximum Latitude Event
	S/C_Minimum_Latitude	Minimum Latitude Event
	S/C_Night/Day	Sunrise Event
	S/C_Noon	Noon Event
	SAA_Entry	South Atlantic Anomaly Entry Event
	SAA_Exit	South Atlantic Anomaly Exit Event
	Solar_Eclipse_Entry	Solar Eclipse Entry Event
	Solar_Eclipse_Exit	Solar Eclipse Exit Event
	VA_Belt_Entry	Van Allen Belt entrance Event
	VA_Belt_Exit	Van Allen Belt Exit Event
	X-Band_Interference_End_DSN16	X-Band Interference End for dsn16 Event
	X-Band_Interference_End_DSN46	X-Band Interference End for dsn46 Event
	X-Band_Interference_End_DSN66	X-Band Interference End for dsn66 Event
	X-Band_Interference_Start_DSN16	X-Band Interference Start for dsn16 Event

Table E-1. Discrete Orbital Events (continued)

X46 IF	X-Band_Interference_Start_DSN46	X-Band Interference Start for dsn46 Event
X66 IF	X-Band_Interference_Start_DSN66	X-Band Interference Start for dsn66 Event

Table E-2. Duration Orbital Events (1 of 2)

CERES_Beta_Angle_Danger_Zone	Ceres Beta Angle Danger Zone Event
CERES_Elev_Angle_Danger_Zone	CERES Elevation Angle Danger Event
CERES_Footprint_Tgt_Vis_Duration_Event_Baltimore_City	CERES Target Visibility Exit for Baltimore Duration Event
Ground_Contact_In_View_BMD	Direct Access Antenna Ground Contact in View - WOTS
Ground_Contact_In_View_CAN	Direct Access Antenna Ground Contact in View - SGS
Ground_Contact_In_View_GDS	Direct Access Antenna Ground Contact in View - AGS
HGA-TDRS_In_View_TD1	HGA-TDRS In View TD1 Event
HGA-TDRS_In_View_TD3	HGA-TDRS In View TD3 Event
HGA-TDRS_In_View_TD4	HGA-TDRS In View TD4 Event
HGA-TDRS_In_View_TD5	HGA-TDRS In View TD5 Event
HGA-TDRS_In_View_TD6	HGA-TDRS In View TD6 Event
HGA-TDRS_In_View_TD7	HGA-TDRS In View TD7 Event
MISR_Footprint_Tgt_Vis_Duration_Event_London_City	MISR Visibility Target for London Duration Event
MISR_Moon_In_View	Sun/Moon Field of View MISR Moon in View Event
MISR_Sun_In_View	Sun/Moon Field of View MISR Sun in View Event
MODIS_Footprint_Tgt_Vis_Duration_Event_Paris_City	MODIS Target Visibility for Paris Duration Event
MODIS_Moon_In_View	Sun/Moon Field of View MODIS Moon in View Event
MODIS_Sun_In_View	Sun/Moon Field of View MODIS Sun in View Event
MODIS_Target_FOV_In_View_SITEA	MODIS Target Field Of View in View Event for SITE A
MODIS_Target_FOV_In_View_SITEB	MODIS Target Field Of View in View Event for SITE B
MODIS_Target_FOV_In_View_SITEC	MODIS Target Field Of View in View Event for SITE C
MODIS_Target_FOV_In_View_SITED	MODIS Target Field Of View in View Event for SITE D
MODIS_Target_FOV_In_View_SITEE	MODIS Target Field Of View in View Event for SITE E
MOPITT_Footprint_Tgt_Vis_Duration_Event_Hawaii_State	MOPITT Visiility Target for Hawaii Duration Event
OMNI-GND_In_View_BMD	OMNI-GND View WOTS Event
OMNI-GND_In_View_CAN	OMNI-GND View SGS Event
OMNI-GND_In_View_GDS	OMNI-GND View AGS Event
OMNI-TDRS_In_View_TD1	OMNI-TDRS In View TD1 Event
OMNI-TDRS_In_View_TD3	OMNI-TDRS In View TD3 Event
OMNI-TDRS_In_View_TD4	OMNI-TDRS In View TD4 Event

Table E-2. Duration Orbital Events (2 of 2)

OMNI-TDRS_In_View_TD5	OMNI-TDRS In View TD5 Event
OMNI-TDRS_In_View_TD6	OMNI-TDRS In View TD6 Event
OMNI-TDRS_In_View_TD7	OMNI-TDRS In View TD7 Event
S/C_Day	Day Event
S/C_Night	Night Event
SAA_In_Anomaly	South Atlantic in Anomaly Event
Solar_Eclipse_In_Eclipse	Solar Eclipse Event
VA_Belt_In_Belt	Van Allen Belt In Belt Event
X-Band_Interference_Duration_DSN16	X-Band Interference DSN16 Event
X-Band_Interference_Duration_DSN46	X-Band Interference DSN46 Event
X-Band_Interference_Duration_DSN66	X-Band Interference DSN66 Event

This page intentionally left blank.

Abbreviations and Acronyms-

ACK	Acknowledge
AGS	ASTER Ground System
ANA	Analysis
AOS	Acquisition of Signal
APID	Application Process ID
ASCII	American Standard Code for Information Interchange
AST	ASTER Science Team
ASTER	Advanced Spaceborne Thermal Emission and Reflection Radiometer (formerly ITIR)
ATC	Absolute Time Command
BAP	Baseline Activity Profile
CAC	Command Activity Controller
CCB	Configuration Control Board
CCW	Command Control Window
CCSDS	Consultative Committee for Space Data Systems
C&DH	Command and Data Handling
C&T	Command and Telemetry
CDB	Command Data Block
CDE	Common Data Environment
CDRL	Contract Data Requirement List
CERES	Clouds and Earth's Radiant Energy System
CEV	Command Execution Verification
CI	Configuration Item
CLCW	Command Link Control Word
CLTU	Command Link Transmission Unit
CM	Configuration Management

CMD	Command
CMS	Command Management System
CODA	Customer Operations Data Accounting
COM	Communication
COP	Command Operation Procedure
COTS	Commercial Off-The-Shelf
CRC	Cyclic Redundancy Check
CSCI	Computer Software Configuration Item
CSMS	Communications and System Management Segment
CSR	Consent-to-SHIP Review
CSS	Communications Subsystem (CSMS)
CSTOL	Colorado Standard Test and Operations Language
CTIU	Command and Telemetry Interface Unit
Ctrl	Control
DAAC	Distributed Active Archive Center
DAR	Data Acquisition Request
DAS	Detailed Activity Schedule
DBA	Database Administrator
DBMS	Database Management System
DCN	Document Change Notice
DDD	Day, three digit format
DEC	Digital Equipment Corporation
DFCD	Data Format Control Document
DID	Data Item Description
DMS	Data Management Subsystem
DN	Data Number
DSS	Decision Support System
EAS	Electrical Accommodation Subsystem
ECL	ECS Command Language

ECOM	EOS Communications
ECS	EOSDIS Core System
EDOS	EOS Data and Operations System
EDU	EDOC Data Unit
EGS	EOS Ground System
EOC	EOS Operations Center
EOS	Earth Observing System
EOSDIS	Earth Observing System Data and Information System
ETS	EOSDIS Test System
EU	Engineering Unit
FARM	Frame Acceptance and Reporting Mechanism
FDD	Flight Dynamics Division
FDF	Flight Dynamics Facility
FIFO	First In - First Out
FOP	Frame Operation Procedure
FOS	Flight Operations Segment (ECS)
FOT	Flight Operations Team
FSE	Flight Segment Engineer
FSW	Flight software
FTP	File Transfer Protocol
FUI	FOS User Interface
GCM	Ground Control Message
GCMR	Ground Control Message Request
GN&C	Guidance Navigation and Control
G/S	Ground System
GSFC	Goddard Space Flight Center
GUI	Graphical User Interface
HGA	High gain antenna
HH	Hours, two digit format

HK	Housekeeping
HP	Hewlett Packard
HS	Health and Safety
I&T	Integration and Test
ICC	Instrument Control Center
ICD	Interface Control Document
ID	Identification
IOT	Instrument Operations Team
IP	International Partners
IRD	Interface Requirements Document
IS	Ingest Subsystem
IST	Instrument Support Toolkit
IWG	Investigator Working Group
K	Kilo
KSA	Ku-band Single Access
LAN	Local Area Network
LAT	Local Area Transport
LSM	Local System Manager
LTIP	Long Term Instrument Plan
LTSP	Long Term Science Plan
MA	Multiple Access
MB	Megabyte
MCS	Mission Control System
MDT	Mean Down Time
MH	Message Handler
MIS	Management Information System
MISR	Multi-Angle Imaging SpectroRadiometer
MM	Minutes, two digit format
M&O	Maintenance and Operations

MODIS	Moderate Resolution Imaging Spectrometer
MOPITT	Measurements of Pollution in the Troposphere
MP	Microprocessor
MSS	Management and Subsystem (part of CSMS)
MTBF	Mean Time Between Failure
MTBM	Mean Time Between Maintenance
MTTR	Mean Time To Repair
mwm	Motif window manager
NCC	Network Control Center
OA	Operations Agreement
OASIS	Operations and Science Instrument Support
OMT	Object Model Technique
ODS	One Day Schedule
ODT	Operational Data Tapes
OOD	Object Oriented Design
PA	Performance Assurance
PACS	Polar Acquisition and Command Subsystem
PALS	Procedure Automation Language Shell
PAS	Planning and Scheduling
PDB	Project Data Base
PI	Principal Investigator
PI/TL	Principal Investigator/Team Leader
PLOP	Physical Layer Operation Procedure
PN	Pseudo-Noise
PORTS	Payload Operations Real-Time Support
PSTOL	PORTS System Test and Operations Language
Q/A	Quality/Accounting
RAID	Redundant Array of Inexpensive Disks
RCTD	Return Channel Time Delay

RDD	Return Data Delay
RMA	Reliability, Maintainability, Availability
RMS	Resource Management Subsystem
RT	Remote Terminal
RTie	RTworks Inference Engine
RTS	Relative Time Command Sequence
RZS	Range Zero Set
SAR	Schedule Add Request
SB	Standby
S/C	Spacecraft
SCC	Spacecraft Controls Computer
SCF	Science Computing Facility
SCL	Spacecraft Command Language
SDN	Schedule Delete Notification
SDPS	Science Data Processing Segment
SDR	Schedule Delete Request
SDVF	Sensor Data Validation Facility
SFE	Science Formatting Equipment
SMC	System Monitoring and Coordination
SN	Space Network
SRE	State Recognition Engine
SRM	Schedule Result Message
SS	Seconds, two digit format
SSA	S-band Single Access
SSIM	Spacecraft Simulator
SSR	Solid State Recorder
SSST	Solid State Star Tracker
STE	State Transition Engine
STS	Short Term Schedule

STGT	Second TDRSS Ground Terminal
STOL	System Test and Operations Language
SW	Software
SYS	System
TD	Target Day
TDRS	Tracking and Data Relay Satellite
TDRSS	Tracking and Data Relay Satellite System
TGT	TDRS Ground Terminal
TLM	Telemetry
TONS	TDRSS On-board Navigation System
TOO	Target Of Opportunity
TPOCC	Transportable Payload Operations Control Center
TRMM	Tropical Rainfall Measuring Mission
TSTOL	TPOCC System Test and Operations Language
TTM	Time Transfer Message
UDP	User Datagram Protocol
UPD	User Performance Data
URL	Universal Resource Locator
USCCS	User Spacecraft Clock Calibration System
USM	User Schedule Message
UTC	Universal Time Coordinated
VDD	Version Description Document
WAN	Wide Area Network
WKS	Workstation
WSGT	White Sands Ground Terminal
YYYY	Year, four digit format

This page intentionally left blank.

Glossary

Activity	A specified amount of scheduled work that has a defined start date, takes a specific amount of time to complete, and comprises definable tasks.
Activity Component	An activity component is a single item that can be placed into an activity definition. Any one of the following items can be an activity component: an ATC command, an ECL command procedure, a mode transition, an ECL directive, or another activity definition.
Activity Definition	An activity definition is a collection of activity components containing default scheduling information and modified parameter values. Each activity definition is associated with a single resource and can be used to perform one or more spacecraft functions. Activity definitions can include ATC commands, ECL directives, ECL command procedures, and other activity definitions. In order for the components in an activity definition to appear on an open plan, the activity definition must be scheduled using one of the Planning and Scheduling subsystem scheduling tools.
Activity Level Constraint Checking	Activity level constraint checking refers to the constraint checks that are performed when an activity definition is scheduled and again when an ATC load is generated. Activity level constraint checking attempts to determine if scheduling an activity definition will violate any constraints that have been defined.
Activity Type	Activity definitions that are created can have one of the following activity types: standard, TDRSS contact, ground contact, slew, or uplink. The allowable activity types for an activity definition are based on the activity definition's associated resource. Most activity definitions are of the standard type.
Analysis	Technical or mathematical evaluation based on calculation, interpolation, or other analytical methods. Analysis involves the processing of accumulated data obtained from other verification methods.
Annotation	Comments associated with a scheduled activity.

ATC Command	An Absolute Time Command is an individual spacecraft command as defined in the database. ATC commands can be scheduled as part of an activity definition or individually. Many ATC commands have parameter values that can be changed when creating an activity definition and again when scheduling the command.
ATC Load	An ATC load is a collection of ATC commands scheduled for uplink to the spacecraft.
Attitude Data	Data that represent spacecraft orientation and onboard pointing information. Attitude data includes: <ul style="list-style-type: none"> • Attitude sensor data used to determine the pointing of the spacecraft axes, calibration and alignment data, Euler angles or quaternions, rates and biases, and associated parameters. • Attitude generated onboard in quaternion or Euler angle form. • Refined and routine production data related to the accuracy or knowledge of the attitude.
Availability	A measure of the degree to which an item is in an operable and committable state at the start of a "mission" (a requirement to perform its function) when the "mission" is called for an unknown (random) time. (Mathematically, operational availability is defined as the mean time between failures divided by the sum of the mean time between failures and the mean down time [before restoration of function].
BAP Definition	A Baseline Activity Profile (BAP) definition is a collection of activity definitions containing default scheduling information, a frequency, and parameter values. BAP definitions are created in order to schedule activity definitions on an open plan repeatedly over time starting at some specified point in time.
BAP Frequency	The frequency to be used when scheduling the activity definitions contained within a BAP definition. BAP frequency can be entered in any of the following units: minutes, hours, days, weeks, orbits, events, or day of the week.
Baseline Activity Profile	A schedule of activities for a target week corresponding to normal instrument operations constructed by integrating long term plans (i.e., LTSP, LTIP, and long term spacecraft operations plan).

Batch Scheduling	Batch scheduling is a scheduling mode used to schedule multiple communication contacts on an open plan over a specified time interval. The communication contact algorithm is used in order to determine where the communication contacts should be scheduled on the plan.
Build	An assemblage of threads to produce a gradual buildup of system capabilities.
Calibration	The collection of data required to perform calibration of the instrument science data, instrument engineering data, and the spacecraft engineering data. It includes pre-flight calibration measurements, in-flight calibrator measurements, calibration equation coefficients derived from calibration software routines, and ground truth data that are to be used in the data calibration processing routine.
Child Activity	A child activity is an activity contained within a complex activity (parent) definition.
Command	Instruction for action to be carried out by a space-based instrument or spacecraft.
Command Level Constraint Checking	Command level constraint checking refers to the constraint checks that are performed on the individual ATC commands contained within an ATC load. This level of constraint checking will check for things like command sequencing and relative spacing between related commands.
Command Parameter	A command parameter is a value associated with an ATC command defined within the database. Each command parameter has a type (integer, float, etc.) and a value that is either fixed or modifiable. Modifiable parameters can be modified at the time of activity (or BAP) definition and again when the activity (or BAP) definition is scheduled.
Communication Activity	A communication activity is an activity definition that is associated with a communications resource.
Communication Contact	A communication contact is a complex communication activity definition associated with the main communications resource that has been scheduled on an open plan. This complex communication activity definition has as components uplink, downlink, and slew activities. These are also scheduled on their associated resources on the same plan over the same time interval as the complex communication activity.

Complex Activity	A complex activity is an activity definition containing one or more activity definitions among its components. There is a parent
Constraint	A constraint is a rule that specifies an association between two resources. Each end of the association can be defined in terms of an activity definition, mode, or orbital event type. An example of a constraint would be a rule specifying that an instrument in a certain mode should not occur during the time that the spacecraft is in science mode.
Contact Algorithm	The contact algorithm is used in batch scheduling mode to optimize the scheduling of communication contacts according to the contact algorithm parameters. The algorithm generates the schedule that best fits the parameters values. The values and weight (priority) of these parameters are user configured.
Contact Algorithm Parameters	The parameters that are used by the contact algorithm when communication contacts are scheduled in batch scheduling mode. The algorithm parameters are such as: the number of contacts per orbit, the duration of each contact, and the separation between contacts.
Contact Scheduling	Contact scheduling is the process of scheduling communication contacts either in batch scheduling mode or as individual communication contacts.
DAS	A Detailed Activity Schedule (DAS) consists of a portion of the Master Plan along with the corresponding ATC load and Ground Schedule.
Default Parameter Value	A default parameter value is the value associated with a parameter contained within an ATC command or ECL command procedure used in a scheduled activity when the activity definition is scheduled without modifying the parameter's value. Default parameter values are contained in the database.
Default Scheduling Information	Default scheduling information refers to the default start and stop time information that is entered when creating an activity or BAP definition. Default start and stop times will be used whenever an activity or BAP definition is scheduled and no new start and stop times have been entered.

Detailed Activity Schedules	The schedule for a spacecraft and instruments which covers up to a 10 day period and is generated/updated daily based on the instrument activity listing for each of the instruments on the respective spacecraft. For a spacecraft and instrument schedule the spacecraft subsystem activity specifications needed for routine spacecraft maintenance and/or for supporting instruments activities are incorporated in the detailed activity schedule.
Direct Broadcast	Continuous down-link transmission of selected real-time data over a broad area (non-specific users).
Downlink Activity	A downlink activity is a communication activity of type TDRSS or ground contact scheduled on a downlink resource on an open plan.
ECL	ECL refers to the EOC Command Language.
ECL Command	An ECL command is a spacecraft command defined in the database that can be placed into an activity definition. The primary difference between ATC commands and ECL commands is that scheduled ECL commands are placed into the ground schedule instead of the ATC load at load generation time.
ECL Command Procedure	A collection of ECL directives used to perform one or more spacecraft functions. ECL command procedures provide the capability to perform functions such as: issuing spacecraft commands, displaying telemetry pages, defining telemetry limits, and defining logical constructs for conditional and iterative execution of directives.
ECL Directive	An ECL directive is a keyword recognized by the ECL command language parser that can be placed into a ECL command procedure.
EOS Data And Operations System (EDOS) Production Data Set	Data sets generated by EDOS using raw instrument or spacecraft packets with space-to-ground transmission artifacts removed, in time order, with duplicate data removed, and with quality/accounting (Q/A) metadata appended. Time span or number of packets encompassed in a single data set are specified by the recipient of the data. These data sets are equivalent to Level 0 data formatted with Q/A metadata.

For EOS, the data sets are composed of: instrument science packets, instrument engineering packets, spacecraft housekeeping packets, or onboard ancillary packets with quality and accounting information from each individual packet and the data set itself and with essential formatting information for unambiguous identification and subsequent processing.

Event Message	An event message is an informational message indicating the current state of some portion of the Planning and Scheduling subsystem software.
FDD	FDD refers to NASA's Flight Dynamics Division, which generates orbital data.
FDD Data	FDD data is predicted data received from the Flight Dynamics Division modeling the in flight behavior of the satellite and its instruments as it orbits as well as ephemeris.
Fixed Parameter	A fixed parameter is a parameter contained within an ATC command, ECL command, or ECL command procedure that cannot be modified.
Gaining Access	When a resource is modified over a given time interval on an open plan by a user with the proper permissions, that user gains access to that region on the plan. Once access has been gained to a region on an open plan, no other user will be allowed to modify that region until the plan has been saved by the user with access to that region.
Global Visibility	Global visibility refers to the concept of allowing each user to see any changes that have been saved on the Master Plan. If changes are saved on the Master Plan over a time interval, those changes will become visible to any user that has an open version of the Master Plan overlapping the saved time interval.
Ground Activity	A ground activity is a communication activity definition of type ground contact. Unlike TDRSS activities, ground activities do not have associated NCC configuration codes.
Ground Schedule	The ground schedule consists of ECL directives that have been scheduled as part of the load generation process.
Hard Constraint	A hard constraint is a constraint that must be satisfied in order to generate an ATC load. They usually model instrument safety considerations.

Housekeeping Data	The subset of engineering data required for mission and science operations. These include health and safety, ephemeris, and other required environmental parameters.
Impact Scheduling	In impact scheduling mode, a newly scheduled activity deletes any existing non locked activities scheduled on the same plan and resource which are overlapped by the newly scheduled activity.
Installing a BAP	Installing a BAP refers to the process of specifying a start date for a BAP to begin and scheduling the BAP on an open plan. After a BAP has been installed, the activity definitions contained within the BAP definition are scheduled/re scheduled automatically.
Instrument	<ul style="list-style-type: none"> • A hardware system that collects scientific or operational data. • Hardware-integrated collection of one or more sensors contributing data of one type to an investigation. • An integrated collection of hardware containing one or more sensors and associated controls designed to produce data on/in an observational environment.
Instrument Activity Deviation List	An instrument's activity deviations from an existing instrument activity list, used by the EOC for developing the detailed activity schedule.
Instrument Activity List	An instrument's list of activities that nominally covers seven days, used by the EOC for developing the detailed activity schedule.
Instrument Engineering Data	A subset of telemetered engineering data required for performing instrument operations and science processing.
Instrument Microprocessor Memory Loads	Storage of data into the contents of the memory of an instrument's microprocessor, if applicable. These loads could include microprocessor-stored tables, microprocessor-stored commands, or updates to microprocessor software.
Instrument Resource Deviation List	An instrument's anticipated resource deviations from an existing resource profile, used by the EOC for establishing TDRSS contact times and building the preliminary resource schedule.
Instrument Resource Profile	Anticipated resource needs for an instrument over a target week, used by the EOC for establishing TDRSS contact times and building the preliminary resource schedule.
Instrument Science Data	Data produced by the science sensor(s) of an instrument, usually constituting the mission of that instrument.

Locking a Plan	Locking a plan is the process of denying access over some time interval in order to prevent the plan from being modified over that period. Whenever a DAS is generated, the plan becomes locked over the specified DAS interval.
Locking a Resource	Locking a resource refers to the process of denying access over some time interval on a plan to a resource.
Long Term Spacecraft Operations Plan	Outlines anticipated spacecraft subsystem operations and maintenance, along with forecasted orbit maneuvers from the Flight Dynamics Facility, spanning a period of several months.
Long-Term Instrument Plan (LTIP)	The plan generated by the instrument representative to the spacecraft's IWG with instrument-specific information to complement the LTSP. It is generated or updated approximately every six months and covers a period of up to approximately 5 years.
Long-Term Science Plan (LTSP)	The plan generated by the spacecraft's IWG containing guidelines, policy, and priorities for its spacecraft and instruments. The LTSP is generated or updated approximately every six months and covers a period of up to approximately five years.
Master Plan	The Master Plan is a single plan from which detailed activity schedules and ATC loads are generated. The saved version of the Master Plan is used in the load generation process.
Mean Time Between Failure (MTBF)	The reliability result of the reciprocal of a failure rate that predicts the average number of hours that an item, assembly or piece part will operate within specific design parameters. (MTBF=1/(l) failure rate; (l) failure rate = # of failures/operating time.
Mean Down Time (MDT)	Sum of the mean time to repair MTTR plus the average logistic delay times.
Mean Time Between Maintenance (MTBM)	The mean time between preventive maintenance (MTBPM) and mean time between corrective maintenance (MTBCM) of the ECS equipment. Each will contribute to the calculation of the MTBM and follow the relationship: $1/MTBM = 1/MTBPM + 1/MTBCM$
Mean Time To Repair (MTTR)	The mean time required to perform corrective maintenance to restore a system/equipment to operate within design parameters.
Mode	A mode is a modeling element used to represent different states of spacecraft components. An example of a mode is the spacecraft science mode.

Mode Transition	A mode transition is a type of activity component that can be placed into an activity definition in order to represent the transition of a resource into a certain mode.
Modifiable Parameter	A modifiable parameter is a parameter contained within an ATC command, ECL command, or ECL command procedure with a value that can be modified.
Modified Parameter Value	A modified parameter value is a value associated with a parameter contained within a scheduled ATC command, ECL command, or ECL command procedure that has been modified from the default value defined in the database.
NCC	NCC refers to the Network Control Center used for the scheduling of TDRSS communications.
NCC Configuration Code	An NCC configuration code is an alphanumeric sequence required by all communication activity definitions of type TDRSS contact.
Non-impact Scheduling	In non impact scheduling mode, activities are not scheduled when they overlap with existing scheduled activities already on the same plan and resource.
Object	Identifiable encapsulated entities providing one or more services that clients can request. Objects are created and destroyed as a result of object requests. Objects are identified by client via unique reference.
Open Plan	An open plan is a version of a plan showing scheduled activities, modes, and states for some subset of resources over a specified time interval. Opening a plan is very similar to opening a version of a document in a word processor.
Orbit Data	Data that represent spacecraft locations. Orbit (or ephemeris) data include: Geodetic latitude, longitude and height above an adopted reference ellipsoid (or distance from the center of mass of the Earth); a corresponding statement about the accuracy of the position and the corresponding time of the position (including the time system); some accuracy requirements may be hundreds of meters while other may be a few centimeters.
Orbital Event	An orbital event is an instance of an orbital event type that occurs over the course of time as a result of the in flight operations of the satellite as it orbits. An example of an orbital event is the acquisition or loss signal by the high gain antenna in relation to TDRSS at some point in time.

Orbital Event Type	An orbital event type is a named event type defined in the database that is related to the in flight operations of the satellite as it orbits. Example: sunrise.
Oversubscription	Oversubscription is a special feature in non impact scheduling mode that allows an activity to be scheduled on a resource on an open plan when scheduled activities, modes, and states exist on the plan that overlap the activity to be scheduled.
Parent Activity	A parent activity is a complex activity that has one or more child activities.
Permission	A permission defines an association between a group of user roles and a resource. Proper permissions are required in order to schedule an activity on a resource on a plan over a time interval.
Plan	A plan is a collection of scheduled activities, over time, across all resources that represent a model of the spacecraft.
Playback Data	Data that have been stored on-board the spacecraft for delayed transmission to the ground.
Preliminary Resource Schedule	An initial integrated spacecraft schedule, derived from instrument and subsystem resource needs, that includes the network control center TDRSS contact times and nominally spans seven days.
Preplanned Stored Command	A command issued to an instrument or subsystem to be executed at some later time. These commands will be collected and forwarded during an available uplink prior to execution.
Principal Investigator (PI)	An individual who is contracted to conduct a specific scientific investigation. (An instrument PI is the person designated by the EOS Program as ultimately responsible for the delivery and performance of standard products derived from an EOS instrument investigation.).
Prototype	Prototypes are focused developments of some aspect of the system which may advance evolutionary change. Prototypes may be developed without anticipation of the resulting software being directly included in a formal release. Prototypes are developed on a faster time scale than the incremental and formal development track.

Raw Data	Data in their original packets, as received from the spacecraft and instruments, unprocessed by EDOS.
	<ul style="list-style-type: none"> • Level 0 – Raw instrument data at original resolution, time ordered, with duplicate packets removed. • Level 1A – Level 0 data, which may have been reformatted or transformed reversibly, located to a coordinate system, and packaged with needed ancillary and engineering data. • Level 1B – Radiometrically corrected and calibrated data in physical units at full instrument resolution as acquired. • Level 2 – Retrieved environmental variables (e.g., ocean wave height, soil moisture, ice concentration) at the same location and similar resolution as the Level 1 source data. • Level 3 – Data or retrieved environmental variables that have been spatially and/or temporally resampled (i.e., derived from Level 1 or Level 2 data products). Such resampling may include averaging and compositing. • Level 4 – Model output and/or variables derived from lower level data which are not directly measured by the instruments. For example, new variables based upon a time series of Level 2 or Level 3 data.
Real-Time Data	Data that are acquired and transmitted immediately to the ground (as opposed to playback data). Delay is limited to the actual time required to transmit the data.
Reconfiguration	A change in operational hardware, software, data bases or procedures brought about by a change in a system's objectives.
Resource	A resource represents a physical entity on the spacecraft on which activity definitions, modes, and states can be scheduled. Examples of resources include: the spacecraft instruments, the high gain antenna, the solid state recorder, and the spacecraft .
Role	A user role is an identifier used by the different Planning and Scheduling subsystem tools to determine which scheduling functions can be performed by a user. The valid user roles are defined in the database. Roles are the key to permissions on different resources.
Saving a Plan	Saving a plan refers to the process of saving the scheduled activities, modes, and states associated with the resources on an open plan to the database.

SCC-Stored Commands And Tables	Commands and tables which are stored in the memory of the central onboard computer on the spacecraft. The execution of these commands or the result of loading these operational tables occurs sometime following their storage. The term “core-stored” applies only to the location where the items are stored on the spacecraft and instruments; core-stored commands or tables could be associated with the spacecraft or any of the instruments.
Scenario	A description of the operation of the system in user’s terminology including a description of the output response for a given set of input stimuli. Scenarios are used to define operations concepts.
Scheduled Activity	A scheduled activity is an activity definition that has been scheduled on its associated resource on a given plan. Each scheduled activity has scheduling information and parameter values that are unique to that scheduled activity. A single activity definition can be scheduled many times on one or more plans over time.
Scheduling an Activity	Scheduling an activity refers to the process of scheduling an activity definition on a resource on an open plan using one of the Planning and Scheduling subsystem scheduling tools.
Scheduling Information	Scheduling information consists of a start time, stop time, and any parameter values that have been modified from the default parameter values. Scheduling information may be specified at the time of activity or BAP definition and again when the activity or BAP definition is scheduled.
Segment	<p>One of the three functional subdivisions of the ECS:</p> <p>CSMS -- Communications and Systems Management Segment</p> <p>FOS -- Flight Operations Segment</p> <p>SDPS -- Science Data Processing Segment</p>
Sensor	<p>A device which transmits an output signal in response to a physical input stimulus (such as radiance, sound, etc.). Science and engineering sensors are distinguished according to the stimuli to which they respond.</p> <ul style="list-style-type: none"> • Sensor name: The name of the satellite sensor which was used to obtain that data.
Slew Activity	A slew activity is an activity definition of type slew that has been associated with the high gain antenna resource.

Soft Constraint	A constraint which, if violated, will require user intervention in order to generate an ATC load.
Spacecraft Engineering Data	The subset of engineering data from spacecraft sensor measurements and on-board computations.
Spacecraft Subsystems Activity List	A spacecraft subsystem's list of activities that nominally covers seven days, used by the EOC for developing the detailed activity schedule.
Spacecraft Subsystems Resource Profile	Anticipated resource needs for a spacecraft subsystem over a target week, used by the EOC for establishing TDRSS contact times and building the preliminary resource schedule.
SSR Correction Activity	An SSR correction activity is a scheduled activity on the solid state recorder (SSR) resource representing a correction in the volume of one of the SSR buffer resources that has taken place due to the receipt of an updated SSR buffer volume from the Analysis subsystem.
SSR Playback Activity	An SSR playback activity is a scheduled activity on the solid state recorder resource representing the emptying of the SSR buffers. SSR playback activities are scheduled whenever downlink activities are scheduled on downlink resources.
Start Time	The start time is the time at which an activity or BAP definition should begin. Start time can be entered as an absolute time (YYYY/DDD HH:MM:SS) or relative to an orbital event.
State	A state is used to provide a visual representation of scheduled activities, modes, power usage, and data rates associated with resources on an open plan via the Planning and Scheduling Timeline tool.
Stop Time	The stop time is the time at which an activity or BAP definition should end. Stop time can be entered as an absolute time (YYYY/DDD HH:MM:SS), relative to an orbital event, or as a duration.
Target Of Opportunity (TOO)	A TOO is a science event or phenomenon that cannot be fully predicted in advance, thus requiring timely system response or high-priority processing.
TDRS	Tracking Data Relay Satellite
TDRSS	TDRSS is the Tracking Data Relay Satellite System

TDRSS Activity	A TDRSS activity is a communication activity definition of type TDRSS contact that has an associated communications resource. TDRSS activities require NCC configuration codes as part of their activity definitions.
Thread	A set of components (software, hardware, and data) and operational procedures that implement a function or set of functions.
Thread, <i>As Used In Some Systems Engineering Documents</i>	A set of components (software, hardware, and data) and operational procedures that implement a scenario, portion of a scenario, or multiple scenarios.
Toolkits	Some user toolkits developed by the ECS contractor will be packaged and delivered on a schedule independent of ECS releases to facilitate science data processing software development and other development activities occurring in parallel with the ECS.
Uninstalling a BAP	Uninstalling a BAP refers to the process of removing a BAP that has been installed on a plan.
Unscheduling an Activity	Unscheduling an activity refers to the process of removing a scheduled activity from a plan using one of the Planning and Scheduling subsystem scheduling tools.
Uplink Activity	An uplink activity is a communication activity of type TDRSS or ground contact scheduled on an uplink resource on a given plan.
What-if Plan	A “what if” plan is a single plan that can be used as a workspace in order to determine the ramifications of scheduling activity definitions, modes, and states without affecting the Master Plan.